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PROBLEMS OF AN AGEING POPULATION*

BY

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The fact that the authorities responsible for the planning of this joint meeting of the British and Canadian Medical Associations should have chosen ageing as an appropriate subject for a plenary session is evidence of its topical importance, its geographical spread, and its implications for the future. The point, however, deserves to be made at the very outset that it is grossly unfair to the old people themselves to regard their age purely as a problem for society. To do so would be to forget their own massive contribution to the maintenance of our social structure. To make but two points: in general, they make every effort to preserve their own independence, while the contribution made by the older woman to the domestic life of the community needs only to be stated to be realized. Indeed, though official old age begins at 60 for women and at 65 for men, it is broadly true to say that the problems of ageing that are causing anxiety to our present society derive in the main from those beyond the age of 70, for until then individuals tend, by and large, to be donors rather than debtors to society.

The changes in population structure can be presented only in the broadest outline, and, in any case, they are well known. In a community with unchecked fertility and mortality rates, only the exceptional individual attains the age of 65, and so the proportion of old people is low. In Ceylon the proportion of elderly people was 2.0% in 1881 and had risen only to 3.2% by 1951 (Durand, 1955). Most communities seem able to carry without undue difficulty the stresses imposed by old age at this level. By contrast, there were in 1954 six countries in Western Europe whose population contained 10% or more of old people—and at this level the stresses that are imposed on the community by its elder citizens become suitable matters for public discussion. In the countries mainly concerned—for example, Belgium, France, Great Britain, Sweden—this change in population structure depends on the simultaneous effect of two independent processes, based on our modern ability to exercise some control over both fertility and mortality rates.

By our control over certain infectious and other diseases we have greatly increased the expectation of life, and so allowed more and more individuals to reach the old-age group. This by itself would merely increase the total population, but these same countries have also seen a decline in birth rates since the second half of the last century. A smaller percentage of newborn of necessity increases the proportion of those of greater age, and causes the well-known bulge in the population pyramid. One important social effect of this state of affairs is that fewer children are available to care for their old people, and indeed it has been said that in Great Britain some 25% of our old people are without this source of care (Titmuss, 1955).

In other countries a further factor influencing population structure is the presence of either immigration or emigration. This is of no great numerical significance in Great Britain, but the emigration of its younger citizens is one reason for the high proportion of old people in Eire, and in the opposite direction the immigration of young people may help to keep the proportion of old people down. The Government of Canada in a forecast of future populations publish two sets of tables, one based on no immigration and the other on a net immigration of 75,000 per year (Royal Commission on Canada's Economic Prospects, 1957). These changes in population structure are at their greatest in those countries of Western Europe which were the first to use the techniques of modern science to lessen both their fertility and their mortality rates; but other parts of the world are steadily becoming affected. It is not without significance that Japan, the first of the great civilizations of Asia to adopt Western modes of life, now has two recently formed societies devoted to the study of old age.

Future Trends

It is important to remember that these changes are still in operation, and therefore make all forecasts of the future uncertain. So far as Great Britain is concerned, the immediate future will surely witness a great increase in the number of old people, though the actual situation may prove to be much better than some of the gloomy forecasts of recent years have suggested. In 1956 the Parliamentary Secretary to the Ministry of Health stated that the 5 million people in this country of retirement age might—according to some estimates—have increased by 1977 to 9¼ million (Hornsby-Smith, 1956). Taken by itself this would indeed be a daunting prospect, but its effects may well be mitigated by the increase in the birth-rate of recent years, for whereas it takes 65 years to grow an old man, it may take less than 20 years to grow someone capable of looking after him in his old age.

The most important trend at present would seem to lie in the internal structure of the old-age population itself, for whereas 20 years ago more people were just reaching the beginning of the old-age period, now more and more are pressing on to its further end,

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and we are therefore getting more and more very old people. This change is due to the control by antibiotics over the acute and killing respiratory infections of old age. The social consequences of this improvement in old-age mortality are enormous, and more particularly so since, as might be expected, it is the old female rather than the old male who reaps the benefit of this improvement in mortality, and if there is one fact more than another in the medicine of old age which is well established, it is that, in spite of their better mortality rates, old women have a much higher morbidity rate than men. A substantial increase in the number and proportion of very old women could indeed tax our resources. At the present time it has been estimated that some 13% of the men and 17% of the women over 65 are aged 80 and over. It is at this time of life that individuals tend to require medical, nursing, and domestic help from the community, not so much as a temporary support but as a permanent requirement for their survival. It is at these ages that such really senile phenomena as mental deterioration, absence of control over the upright posture, and gross physical weakness become increasing problems.

In Great Britain these changes in population structure are taking place within a social framework that has lost its old stability and is undergoing changes which amount to a social revolution. Some of these have a considerable, if indirect, effect on the ease with which the community can shoulder its responsibilities to its older citizens. The revolution in housing, with the replacement of the old streets of terraced houses by tall blocks of flats, housing estates, or even new towns, makes it more difficult for children and their parents to follow the old-fashioned and favourite custom of living close together but independently. All inquiries have agreed that this is the way the two generations have preferred to help each other. This was the case in the Wolverhampton survey, where no less than 10% of old people had children living in the same street (Sheldon, 1948) and the same state of affairs was demonstrated in the inquiries made by Mr. P. Townsend (1957) in Bethnal Green. Another social change of great importance is the growing employment of women, which may make it more difficult for a woman to find the time necessary to care for an aged relative.

With both population and social structure in a state of flux, one has to consider the problems of ageing within the fixed framework of policy. In Great Britain the official object is "to aid elderly people to live in their own homes as long as is possible," and the Guillebaud Committee supported this policy by saying "the first aim should be to make adequate provision for the treatment and care of old people in their own homes." This is beyond any doubt the right policy, and derives an added strength from the fact that it is what the majority of old people themselves desire. Great Britain is, I think, a pioneer in this respect, but, laudable though the policy may be, success will certainly not be achieved by its mere announcement.

Change in the Problems

Throughout the whole period there is a subtle but continuous change in the character and relative incidence of the different problems presented by old age. It is, nevertheless, convenient to make an arbitrary division of old age into two periods—those on each side of the middle seventies—provided that we remember the extent of individual variation in the rate of ageing, and that 75 is a purely arbitrary mark inserted into a continuous process. It is, however, broadly true that in the earlier period the majority actively desire, and are still able to lead, independent lives—and clearly all our efforts should be directed towards the preservation of this state of affairs. After the middle seventies, on the other hand, independence becomes more difficult, and as the years increase, particularly in the eighties and over, an increasing proportion of old people need support by the community, which may often be total—as an essential condition for the preservation of their existence. Just as in a symphony a theme may gradually develop from a muted announcement in the background until in a steady crescendo it rises to complete domination, so in the continuous progress of old age the theme of custodial care, which is barely relevant to those in their sixties, ultimately comes to dominate the anxieties of the community for those in extreme old age.

The Earlier Period of Old Age

Our first problem applies particularly to the earlier age group, and is that of enabling them to maintain their independence for as long as possible, which in turn raises further problems in relation to their physical and mental health and their domestic state. So far as physical health is concerned, it may be said at once that enormous benefits have flowed from the provision of spectacles and hearing-aids under the National Health Service, and a further immense contribution to the usefulness of old people will without doubt follow from the provision of chiropody services, for the state of our civilized feet is a major challenge to preventive medicine. The preservation of health in this age-group is of paramount importance, and may well require considerable extension of our hospital services by such methods as that of the day centre.

The "Meals on Wheels" service is of great value, for an insufficient or inadequate diet in old age may lead to a deficit in mental as well as physical vigour. The mention of this service, which is essentially a voluntary one though it may have official assistance, raises a further problem which is always present in endeavours to help old people at home—that of the discovery of those who most need help. This is a very real difficulty, and it raises the question of the development of a service of "Good Neighbours," who from their own local knowledge could assist in the recognition of need. This is of even more relevance in the maintenance of mental than of physical health in the elderly; for loneliness is a potent inhibitor of mental vigour and stability in old age, its possibilities of relief by such voluntary services as visiting or the use of clubs are well-known, and the main problem is the discovery of those who most need it.

Another deterrent to mental vigour in this earlier phase of ageing is the sense of uselessness—which particularly applies to men compulsorily retired at a fixed age. This raises the matter of the employment of the elderly—it cannot yet be said that the problems of employment, having regard to the needs of both the younger and the older generations, have yet been solved.

The need to combat the sense of being "on the shelf" is well recognized, and the big problems of the use of leisure and of education for retirement are now, at any rate, well recognized and under increasing examination.

So far as domestic independence is concerned, the elderly themselves are actuated throughout by the desire to remain independent; during this earlier phase they contribute over 60% of their own maintenance, the balance being mainly supplied by younger relatives. Problems that arise are those of sufficient housing accommodation suitable for old people, of which there is still a considerable shortage, and of its best design and arrangement—whether as scattered units or in groups with a warden in attendance—and of so arranging matters that children and their parents can live close to one another. Nevertheless, there are many old people in this group whose independence is contingent on the provision of further domestic help—available in its various forms both from local authority and from voluntary services. Apart from the difficulties of discovery, the width of the support required—which may involve laundry services—raises further problems.

The Later Period

If we now apply the same points of view to the later period of old age—beyond 75—we uncover a very different set of problems. We now find ourselves faced with an increasing amount of breakdown in health, much of which is, in the light of our present knowledge, both unpreventable and apparently inevitable, imposing a special stress on the community by virtue of its long duration. It is a commonplace observation nowadays that the wards of hospitals for acute cases are themselves becoming increasingly "geriatric" owing to their increasing intake of very old people. In certain departments of medicine, where age is particularly apt to cause breakdown, the incidence may be especially high. The eye hospitals, for instance, have to cope with increasing numbers of old people presenting with cataract or senile degeneration of the macula: the accident and orthopaedic departments have to meet an increasing challenge from the old people whose osteoporosis combined with loss of postural control has led to a fracture, particularly of the neck of the femur. In the women's medical ward of the Royal Hospital, Wolverhampton, the proportion of the total admissions made by women aged 70 and over rose steadily from 3.9% in 1948 to 10.4% in 1957, and for the first half of 1959 was no less than 12%.

The very presence of these problems in physical health serves only to emphasize the importance of the problem of social health at this time of life, in the absence of which the discharge of a locally cured but constitutionally or mentally enfeebled old person may prove exceedingly difficult. This in turn creates a vicious circle, increasing the pressure on accommodation in acute departments whose size was originally determined in relation to a much smaller load. The increasing duration of the period of final incapacity, which is taking place under our very eyes and is a direct consequence of the increase in the numbers of very old people, raises a further problem. It is that of attempting to define the indefinite in the interests of administrative tidiness; and the hope of discovering the correct authority to provide custodial care for an enfeebled old person has led to the creation of a special term—the "frail ambulant." In general, the greater the age the greater the difficulty of such simple classification, and the less likely is it to be continuously valid. Though a verbal categorization of the varying states of old age may well be essential for administrative purposes, it underlines the importance of flexibility and human understanding in the management of individual problems.

Domestic Aspects

We now come to the greatest problems of all, those involved in the domestic aspects of the policy of Great Britain, that of enabling as many of our older citizens as possible to spend the evening of their lives at home. From what has already been said, it will be clear that the great majority of those in the later period of old age will need help—some intermittently, some continuously, and some only terminally. It is also certain that for many of the old people in the later age-group such help will need to be institutional; for the percentage of those capable of completely independent existence rapidly diminishes at the same time that the percentage lacking effective domestic contact with relatives increases.

The three main types of domestic structure each raise problems of their own. (1) The isolates—old people lying entirely alone without effective human contacts. These people, when in need, inevitably establish a prior claim on the resources of the community—whether institutional or domestic—and so leave less available for others. At the time of the 1951 Census two-thirds of hospital beds for the elderly were occupied by single and widowed or divorced people (Abel-Smith and Titmuss, 1956). (2) In some ways the problems raised by the semi-isolates are even greater. These are the old people living in pairs—such as husband and wife or two sisters—whose independence is based either on the united efforts of both or on the continued health of one partner. When illness strikes, the household collapses and the community may have to carry two individuals, often under circumstances of much emotional difficulty. In fact, the hospitals of the future may have to provide married quarters for their aged patients—as they now do for their residential medical staff. (3) Much the largest group is that of the old people who derive help from the family.

The main burden in the past has always been carried by the family, and is still so carried, and the role of the family in relation to old age therefore needs close consideration. It is commonly said nowadays that children are no longer so willing to look after their parents, and that with the advent of the Welfare State they are only too happy to transfer the burden to the community, and in general that we are witnessing an abdication from the responsibilities of kinship. In my judgment it is more than doubtful whether this is really true. We should bear in mind that as recently as 1946 nearly 8% of the old people were laying an almost impossible strain on the lives of their younger relatives—especially on daughters. Not only was the community quite indifferent to the presence of this sizable volume of sweated labour in their midst, but the actual volume was some three times as great as the accommodation available in public institutions. A refusal of help by a section of this size could well account for the present anxiety. Further, the housing changes and the greater employment of women have made the work both of the immediate and of the extended family more difficult.

Probably, however, the strongest indication that the ties of kinship are still operative lies in the fact that the community is able to manage at all, for a real abdication by the younger generation from the care of their old people would completely submerge our present resources.

This leads to an urgent problem—that of raising the family to a position of recognized partnership, for the family is indeed the dominant partner in the enterprise, and it is only when relatives are absent, as in the case of the isolate, when they fail, or when the burden is too great for them that the community services become necessary. This has immediate relevance to the stresses now imposed on the services in hospitals for acute cases, which have already been mentioned. It entails the elevation of early and adequate consultation with the family into a position of prime importance in the management of acute illness in an old person.

A Social Problem

In old people physical or mental illness is as much a social as a technical problem, and in the future this point of view will need to be recognized as of the greatest importance to the hospital services. Only too frequently, when an old person is admitted for an acute illness, the relatives are not brought up against their responsibilities until a relatively late stage in the illness—usually when discharge home is suggested. This may happen after various domestic changes have been made at home, and then, when the approach to them is made, as it almost invariably is, by someone in a position of secondary authority—the whole set-up is conducive to an atmosphere of rebellion. The response might have been different had they been seen at the outset by someone—such as the doctor in charge, whose authority they accept. The encouraging experience of the more progressive geriatric centres, where the enlistment of the children's support is regarded as a matter of primary importance, shows what can be done. It need hardly be added that in this field the general practitioner plays a part of fundamental importance, and that to a large extent the success of a geriatric unit in hospital hinges on his co-operation in the domestic care of old people. It should be borne in mind that the final illness of an old person may not only be prolonged but also have ups and downs.

It is becoming increasingly recognized in geriatric practice that to obtain the loyal assistance of the family two measures are necessary: (1) the opportunity of an actual interview with the consultant in charge—as early as possible and, at any rate, as soon as a reasonable discussion of the present situation and future developments is possible; and (2) the promise by the hospital of immediate readmission for any urgency, whether technical or domestic—the policy of intermittent readmission. As has been said, it is the experience of geriatric units that when the relatives realize that the hospital regards them as equal partners in a common enterprise and is prepared to help if matters become more difficult, then the relatives will pull their weight. Success in this effort is not only essential to the community but may also be of inestimable benefit to the old person, for, next to the death of a beloved spouse, probably the bitterest blow that life can deal to old people is the realization that their children no longer want them. They then indeed do become outcasts from society—desolates as well as isolates.

Conclusion

It is important not to forget the assistance that has been given in the past by good neighbours—in 1946 it was estimated that they provided nearly 20% of the home nursing of old men and 30% of that of old women. The changes in housing arrangements and in employment tradition have led to the severance of many intangible human ties, and one may, in fact, say that the major problem of the present time is to promote the conditions in which these ties of human affection, whether as kinsmen or as neighbours, can continue to flourish and so support the evening of the lives of our older people.

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PROBLEMS OF AN AGEING POPULATION*

BY

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The problems of ageing of the population are widely recognized as being of fateful significance both in the highly developed countries, whose populations are held by many to be ageing too much and at a too rapid rate, and in the underdeveloped parts of the world, whose populations would probably benefit from reproducing less and growing more aged. But it is in the highly industrialized and relatively affluent parts of the world that medicine is being compelled to an increasing extent to direct its attention to problems that bear some relationship to the ageing process. Mental illness is one of these problems, for the chance of developing it increases with advancing age. This is clearly evident in the Table and the Figure, which show that there is a steep rise in the first admission rate to mental hospitals between ages 16 and 25 and thereafter a more steady increase in women, while the rates for men show a temporary decline in the middle years. However, after the age of 65 the curve shows a steep upward gradient for both sexes. The curves for total admissions to mental hospitals are very similar in shape. It is not generally appreciated that it is only in age groups beyond 65 years, even according to the Registrar-General's figures, that the organic psychoses of senescence (mainly recorded under the heading of senile psychosis) become

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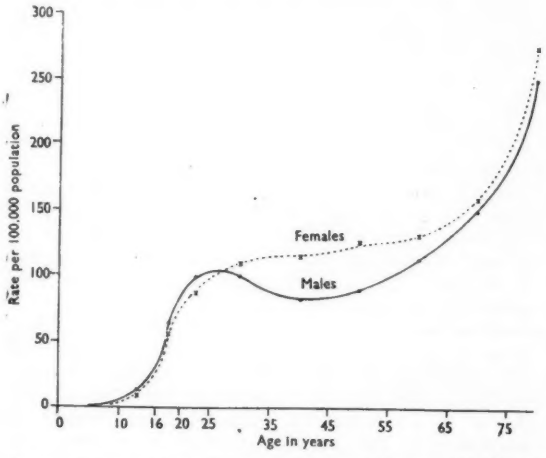
predominant as causes of mental disorder leading to admission to a mental hospital. There is, moreover, some reason to believe that official statistics may underestimate the relative proportion, among the aged, of mental disorders which carry a far better prognosis and are not essentially different from psychosis and neurosis in earlier life (Roth, 1955).

However, the different types of "functional" mental illness differ widely in their age of onset. The great majority of cases of schizophrenia begin between the ages of 15 and 50, and the peak for first admission rates is in the late twenties; between the ages of 20 and 40, when it takes its most heavy and terrible toll, the male admissions are far in excess of the female. On the other hand, manic-depressive psychosis, which is largely manifest as depressive illness, while a considerable problem already in the third decade, shows a steady rise in first admission rates, to reach a peak at about 65 years, and in most of the age-groups at risk women predominate (Brooke, 1958). Between the ages of 45 and 65 depressive illness is by far the most important single cause of admission to mental hospitals; but it remains common after 65 and is probably important as a cause of mental ill-health among old people in the community. Neuroses resemble schizophrenia in so far as most cases begin between the second and fifth decades (Shepherd and Gruenberg, 1957). Other things equal, a rise in the relative proportion of the aged will therefore tend to increase the total incidence of mental disorder in the population and that of manic-depressive psychosis and the organic disorders of the aged in particular, while schizophrenia and neurosis will be likely to decline in relative importance.



Rates of first admissions to mental hospitals per 100,000 of estimated population, 1951.

The suicide rate, like that for manic-depressive psychosis, mounts with advancing age; the peak rate for consummated suicide is to be found in old age or late middle age in nearly every country for which statistical data are available. Moreover, though a general decline in overall rates has occurred in many countries in the past 15 to 25 years, the aged have on the whole benefited relatively little. In England and Wales, for example, the incidence of suicide since the end of the second world war has fallen for all age-groups but least for those over 60, while the rates for women over 60 have increased and are still rising. The figures for many other European countries tell the same tale (World Health Organization, 1956).

Little is known about the frequency of mental illness among old people outside hospital, since none of the surveys that have been conducted to investigate their health was specifically designed to yield such information. But only a proportion of those mentally ill at a given time are to be found in mental hospitals or psychiatric clinics. In Great Britain there are probably over 60,000 cases of senile psychosis alone—the most grave and disabling form of mental illness in old age—and this constitutes only a fraction of the mental health problem. In those surveys which make some mention of the mental health of the aged, apathy, depression, fear, and hopelessness are mentioned in a proportion which ranges from 11 to 50%.

The Aged and the Community

The view of physicians, psychiatrists, and social and welfare workers tends to be confined to the black side of the picture. We tend to think in terms of lonely old people and selfish, irresponsible children, forgetting that 95% of the aged are living outside institutions. Moreover, investigations have provided ample evidence that the bonds within most families are strong and enduring, and that the aged remain an integral and often vital part of the family unit, living near and usually in regular contact with one or more of their relations (Townsend, 1957). However, even if as many as two-thirds lead lives that are full, happy, and secure, there remain about one-third, composed of the isolated and inactive, the infirm, and the sick. And there is a marginal group constituting some 10 to 15% of the total that survive in the community with difficulty or at the cost of great hardship to children or relations who are nowadays rarely capable of sustaining such burdens without aid. The crucial point is that even less than 5% of old people in institutions and special homes are pressing heavily upon the health and welfare services and in some places are in danger of causing them to burst at the seams.

There is little doubt that if for some reason the adjustment of a substantial proportion of the marginal

Age Distribution of First Admissions to Mental Hospitals in 1951

	Sex	Age-groups										All Ages
		0–	10–	16–	20–	25–	35–	45–	55–	65–	75+	
Numbers	M	47	213	535	1,224	3,025	2,695	2,567	2,308	1,514	2,065	16,193
	F	22	149	614	1,281	3,515	3,914	3,937	3,368	2,658	3,038	22,496
Proportion per 1,000 total admissions	M	887	842	752	645	587	619	648	659	737	880	663
	F	733	819	757	685	636	602	589	597	663	873	645
Rate per 100,000 civilian population	M	1	12	64	99	99	82	89	113	151	251	79
	F	1	9	56	87	110	115	126	132	161	277	99

Permission has been obtained from the Controller of H.M. Stationery Office to reproduce the Table and Figure from the Registrar-General's Statistical Review of England and Wales, 1950–51, Supplement on General Morbidity, Cancer and Mental Health.

group of infirm and mentally impaired aged were undermined, the health and welfare services would be faced with an impossible task and might be overwhelmed.

The psychological attitude of the community to a problem of this dimension is supremely important. It is not only old people who are dependent, but also very young children. That there is a greater psychological resistance to accepting communal responsibility for old, as opposed to young, dependants is suggested by the fact that reference is rarely made to the valuable but imponderable contributions of the aged in caring for grandchildren, transmitting knowledge about child-rearing and household crafts, and influencing human relationships with their wisdom and experience. It is well to re-emphasize that talk about "medicated survival" is ill-informed and unhelpful. The main factor underlying the ageing of populations is not greater expectation of life so much as a decline in fertility, which began in Western Europe, for example, at the beginning of this century. This is an integral constituent of the advance in living standards. An arrest in population growth, whose desirable consequences we now enjoy, has as its inevitable concomitant ageing of the population. We cannot have our cake and eat it.

Ageing and Health in Early Life

I should like briefly to consider the means at our disposal for relieving the burden which mental illness among the aged lays everywhere on the health and welfare services. It is probably the largest single constituent of the problem of senescence. To some extent we are no doubt dealing with biological factors of which our understanding at present is rudimentary and which can be influenced only within narrow limits. The post-reproductive phase of life may be regarded as a backwater of the evolutionary process which is beyond the reach of natural selection, for this operates only so long as genes produce some impairment of fertility (Medawar, 1957). More specifically, there is evidence to indicate that hereditary factors are partly responsible for such conditions as the senile dementias (Sjögren, Sjögren, and Lindgren, 1952) and even functional psychoses such as the depressions and paranoid illnesses of the aged (Kay, 1959). But these hereditary factors need not frighten us into inactivity. In so far as they have been shown to operate in relation to ageing and its caricature in senile psychosis, these genetic factors would appear to be similar in character to those that decide variation in graded characteristics such as stature and intelligence. Environmental influences always contribute to variation in attributes of this nature.

Moreover, there is a very wide range of variation in the extent to which faculties decline and to which old age is burdened with mental illness among individuals and social groups in different environmental settings. The striking differences in the rate at which the signs of ageing appear in underdeveloped and in highly developed countries—as demonstrated, for example, by the work of Gillman and Gillman, (1951) for South Africans—the increased hazard of admission to mental hospitals in old age among the poor and underprivileged and among the inhabitants of areas of social disorganization and high mobility (Faris and Dunham, 1939; Rose and Stub, 1956), present an immediate challenge. Detailed analysis and investigation of such differences might suggest measures that could within the foreseeable future influence deficiencies that we are accustomed to attribute to "ageing."

The analysis of such facts has not proceeded very far. But it seems likely that many of the deficiencies and diseases which we encounter among the aged are the culmination of changes over many years or perhaps during the whole of the life-span. Genetic factors apart, the acquisitions of early life, whether intellectual, emotional, or nutritional, are the main sources of vitality in old age. If we want to intervene effectively we therefore have to take action long before senescence. This is the lesson that emerges from every field of investigation of the problems of the aged, whether concerned with their health, adjustment, employment, housing, or the use of their leisure. We do not know how to avoid specific mental diseases of the aged, nor the decline in ingenuity and capacity for abstract thought, and the increased forgetfulness and inflexibility it brings in varying degrees. But something is almost certainly contributed to healthy ageing by fostering personal adjustment and fulfilment and physical and mental well-being at earlier stages of development.

In medicine we have yet to adapt our vision to the change in expectation of life in the last half-century. Our thinking about the prognosis of illness or the effects of treatment is narrowly focused upon the few years that follow. The time has long since arrived when we should be asking ourselves how this man of 40 will fare with his neurosis or duodenal ulcer or without his frontal lobes or his stomach at 65. We shall have, in fact, to cultivate the habit of asking the question, "What is this neurotic and eccentric or bronchitic and hypertensive person of 40 going to be like at 70, and what can be done to protect him against the possibility of an old age darkened by loneliness and depression and mental or physical infirmity?"

The effects of our actions are enduring ever longer as living testimony to our imagination or lack of foresight, and the time has arrived when we should be taking a long-term view. The enrichment of assets should go hand in hand with the anticipation of deficiencies. So far as assets are concerned, it is noteworthy that the individual of outstanding intellectual or creative ability seems often able to continue his work into old age and will then sometimes register his finest achievement. But the early start is characteristic and perhaps essential. There should therefore be ample outlets for creative gifts before the forties, when they are already in decline. The present tendency in our culture to postpone the assumption of high responsibility to a progressively later stage in life in an ever-widening range of careers seems to be seriously at variance with our knowledge of the evolution of mental attributes. So far as deficiencies are concerned, Dr. Heron (1958) put it in a nutshell in discussing the problem of adaptation to the changing demands of working life. "We must act," he said, "in such a way that instead of wondering what to do with old Bill when he is past it and has become a problem, we shall have averted the problem by anticipating it 15 or 20 years earlier."

Social Aspects

The social aspects of the problem of mental disorder in old age are important and also remediable—potentially at any rate. Loneliness is a vast problem in modern civilization; for example, 1,400,000 people were living alone in this country in 1951 as compared with less than half this number in 1931 (General Register Office, 1952). It is a problem that leans especially heavily on the aged. Isolation, together with physical

illness, fear of losing independence, and diminished income, is a characteristic setting for mental disturbance and suicidal attempts. Some of our difficulties in this connexion are unavoidable. Increased social and geographical mobility is an integral part of modern social development, and when the young and adventurous leave their home town in search of opportunity the aged may be left without anyone to care for them in sickness. Yet our assets in this respect are greater than generally estimated. As Townsend and others have shown, the three-generation family continues to thrive in the middle of many great cities and exhibits a natural strength which is surprising to those who habitually bemoan the waning of filial piety.

But we squander our resources; many of the new suburban residential areas and satellite towns are at present communities of the young. Twenty-five to thirty years hence they will be communities of the middle-aged and elderly alone. This sort of community development often takes place with haphazard regard for the wishes and emotional needs of both the young and the older generation (Young and Willmott, 1957).

The feeling of not belonging, of having no acceptable contribution to make, that many old people experience in many countries of the world to-day, owes something to the value that has come to be placed, for obvious historical reasons, on the "frontier" attributes of initiative and disregard for precedent which are associated in the popular mind with youth. A disproportionately high value is perhaps placed on youthfulness, and ageing and death appear to be rapidly replacing sex as the major taboos in our society. Whatever the blessings of youth, the social attitudes which are developing show a lack of maturity and balance and have much that is akin to the neurotic treatment of emotional problems, as witness the repellent euphemisms often used to describe the aged and dead. It is hardly necessary to mention that this is not the first time in history that attitudes to ageing and death have been unhealthy. In the Middle Ages many old people with recognizable mental disorder were tried as witches, and there is a particularly vivid description of psychotic self-accusation and abasement in North's (1887) account of the Exeter trial. "The evidence against them was very full but their own confessions exceeded it. They appeared not only weary of their lives but to have a great deal of skill to convict themselves." This was also the age of the sickly, morbid phantasmagorias of Hieronymus Bosch.

In the eighteenth century, on the other hand, more natural and robust attitudes prevailed in some countries, as characteristically reflected in the following conversation.

Boswell: "What I admire in Ramsay is his continuing to be so young."

Johnson: "Why yes sir, it is to be admired. I value myself upon this, that there is nothing of the old man in my conversation. I am now sixty-eight and I have no more of it than at twenty-eight."

Boswell: "But sir, would you not wish to know old age? He who is never an old man does not know the whole of human life; for old age is one of the divisions of it."

Johnson: "Nay sir, what talk is this?"

Boswell: "I mean sir, the sphinx's description of it; morning, noon and night. I would know night as well as morning and noon."

Johnson: "What, sir, would you know what it is to feel the evils of old age? Would you have the gout? Would you have decrepitude?"

Seeing him heated—I would not argue any further, but I was confident I was in the right.

Johnson was obsessed by a fear of eternal damnation, yet even his repugnance for growing old is expressed with a vigour and frankness that one finds refreshing nowadays. And we are perhaps prone to hear more of the advantages of being a "senior citizen" than of knowing the whole of human life, decrepitude and all.

Senescence and Disease

In psychiatry, as in medicine, there has been a growing appreciation during the past few decades that much that formerly passed for the effects of innate decline in senescence is the consequence of specific and often reversible disease. Many old people when afflicted with mental illness become apathetic, inert, retarded, gloomy—and their personal standards may decline so as to suggest advancing senile decay. Extreme agitation or muteness may augment the outward appearance of decrepitude. Yet many patients, presenting thus, suffer, in fact, from a depressive illness which treatment will mitigate or cure. Old people with paranoid psychoses causing excited behaviour, hallucinations, hostility, and vituperative speech may again be improved nowadays by treatment and at times rehabilitated into the community. There is also much to suggest that the alleged immunity of the aged from neurotic breakdown is partly illusory, and that neuroses starting *de novo* in late life and often mitigated by simple measures are not as rare as hitherto supposed. Fulminating delirious states may render the patient inaccessible, and he may appear in hospital in a moribund state. A relatively short history of illness should lead one to suspect that here, too, the impression of advancing senile degeneration is likely to be erroneous. Underlying such delirious or "confusional" states there is, in a high proportion of instances, a specific physical disease which may be susceptible to treatment.

Some of these physical illnesses may produce few of the traditional clinical signs—for example, the "silent" pneumonias and "silent" myocardial infarctions of the aged. The physical illness contributes to the disability and is to some extent important as a cause in all mental disorders of old age—a fact which makes it essential to establish geriatric centres where both full psychiatric and medical facilities are provided. In those in whom a mental illness such as a depression or neurosis is manifest for the first time in senescence, the disability has, in a sense, pursued the most favourable course possible, its manifestation having been postponed until the most active stages of the life-span have been left behind. And there is evidence to suggest, as one might expect, that in the functional psychoses and neuroses of old age genetic loading is relatively smaller and exogenous factors, such as physical illness, bereavement, and isolation, relatively more important in causation than in comparable illnesses in earlier life (Roth and Kay, 1956; Kay, 1959).

Some Practical Measures

We have no specific remedies at present for the main causes of chronicity among the aged in mental hospitals—the senile and arteriosclerotic psychoses, the schizophrenias—who spend their lives there. But a great deal could be done to ease the burden upon psychiatric institutions if remediable disorders were identified and treated at their earliest stages and the facilities for skilled

and energetic rehabilitation into the community everywhere established. One of the most serious problems is that the majority of cases of mental ill-health come under observation only after some crisis, whether social or medical, has arisen. The illness is then often well-advanced (Post, 1959), the family perhaps demoralized, and the situation as a whole irremediable. A great deal more could be achieved if our facilities for detecting those who are isolated, immobile, in grief, or in need for other reasons, could be improved.

This underlines once again the need to deal with the problems of ageing well before they force themselves upon our attention. Effort invested early in life in fostering interests, in helping the individual to cultivate friendships and social activities, would yield some dividend. Tolerance and flexibility in personal relations cannot be cultivated in old age and it is too late then to begin the quest for fulfilment. The problem of inactivity and unused resources is at its most acute for old people, but it will soon be a much greater problem for society as a whole. We are on the threshold of an age of automation in which unprecedented amounts of leisure will become available not only for those over 65 but for persons of all ages. Education has yet to be geared to a world in which the over-fifties will equal the under-twenties and in which the leisure and the opportunity this creates will be available to an extent undreamt of even a short while ago.

Our means for attacking some of the problems of mental health in the aged are by no means negligible. We need to intensify scientific inquiry into the wide variation in the extent to which faculties decline and to which old age is burdened with illness among individuals in the same and different social groups. All disciplines have a part to play in this quest: genetic, physiological, epidemiological, sociological, and psychiatric. Meanwhile a great deal could be achieved through a better utilization of existing knowledge of the medical and social aspects of mental health in old age; the promotion of physical well-being in early life; the application of greater imagination to, and the consultation of, the human beings affected by community development; the attack on loneliness and isolation; and the early discovery, diagnosis, and treatment of physical and mental illness among the aged, with recognition of the early signs, particularly of depressive illness and suicidal risk. Those who have made suicidal attempts, so often determined and successful among the aged, could be given more adequate rehabilitation and after-care. I shall not add to the volume of words spoken on the need for integrating the different agencies involved in the care of the aged beyond saying that we are not likely to progress far beyond pious platitudes until a sincere attempt is made by all the persons concerned to place the needs of the aged individual far above all administrative consideration.

The importance of such a many-sided attack upon the problem has been shown by some observations in Sweden on changes in the incidence of invalidism during the past few decades. In an ageing population one would expect the rate to show a steep rise. In fact, the incidence of invalidism in Sweden has fallen in the past 25 years (Sjögren and Larsson, 1960), showing that advances in medicine and the social services may more than offset some of the adverse effects arising from ageing of the population. We have a very long way to go before we can claim to have exploited all the resources at our disposal for offsetting these effects, and can blame ignorance of the nature of "ageing" as the principal cause of our inability to reduce further the ill-health and unhappiness of many old people.

Summary

An increase in the total incidence of mental disorder, and of affective psychosis and the organic psychoses of the aged in particular, may be one of the consequences of ageing of the population. Although less than 5% of people over 65 are in institutions and special homes, the health and welfare services in many areas are already showing signs of strain. Some possible approaches to the problem are discussed. The foundations of physical and mental well-being in old age—so far as they can be influenced—are laid in the early and middle years. Fostering health, adjustment, interests, and outlets well in advance of old age, mitigating loneliness and desolation, helping where possible to conserve family ties, and imaginative planning and community development with an eye to human needs—all have something to contribute. The long-term effects of diseases and major surgical procedures upon the pattern of ageing need to be considered and investigated. Effective remedies are now at our disposal for some mental disorders formerly attributed to "ageing," but their full utilization is impeded by the difficulties of locating depressed, sick, and infirm old people at an early stage of illness. The association between physical and mental health is particularly close in senescence; and integration of psychiatric and medical services, as also of the various agencies concerned in providing them in hospital and in the community, is essential. The expected rise in invalidism consequent upon ageing of the population may be offset for some time ahead by medical and social progress.

This paper owes much to the Sixth Report of the Expert Committee on Mental Health of the World Health Organization on "Mental Health Problems of Aging and the Aged" (to which I acted as a consultant on behalf of W.H.O.) and to the working paper prepared by me for the Committee.

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THE ELDERLY DANE

BY

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In April, 1959, I visited Denmark to study the welfare services over there, particularly in relation to the care of the elderly and the organization of the medical profession. Great kindness and generosity were shown to me by all those on whom I called. The Danes are a courteous and gentle people who have almost unlimited patience to spare for the inquisitive student.

I learnt a great deal during my visit. It was entirely personal research, and I am sure that much of what I write will not be original; moreover, my discoveries may not be of any use to anyone but myself.

I have done my best to be accurate. Where I have been in doubt I have tried to confirm the facts by asking the same question of several people; where their replies have differed I have either omitted the point altogether or quoted more than one answer.

As a State employee I should have been very short-sighted had I not noted during my studies certain other aspects of the Danish welfare state which, even if they have no direct bearing on my subject, are too attractive to be allowed to pass without comment.

Just before I left for Denmark I listened to Sir Keith Joseph delivering the Winchester Address, entitled "The Citizen and the Welfare State." He said that the welfare services formed more of a welfare archipelago than a welfare state. He quoted from the Report of the National Corporation for the Care of Old People for 1958, which states: "To bring about a properly integrated system of social services it is necessary for all who are engaged therein at every level to work in close co-operation; and to do this they must first make the effort to discover, not only their own problems and how they can best be overcome, but also what is being done by social workers in fields which are adjacent to, and even overlapping, their own. . . . The services for old people are the responsibility of four different governmental departments, and the plans which each makes for the future will have an effect both on those made by the others, by whom they must be taken into account, as well as on the whole problem of the care of old people."

Sir Keith then went on to quote a report prepared by Dr. Boucher, of the Ministry of Health, which was published in 1957. He said that "in a trenchant sentence Dr. Boucher comes to this devastating conclusion: 'The position was such that in some areas able-bodied persons were living in welfare homes, the frail ambulant were occupying hospital beds, while chronic sick were dying at home under bad conditions because hospital admissions could not be arranged.'"

Sir Keith summed up by saying that there were therefore these two great problems in the whole health and welfare field (which he had illustrated particularly in connexion with the elderly): co-ordination of policy and co-ordination of performance. He then recommended (amongst other things) the creation of a Minister of Social Service with Cabinet rank.

The day I arrived in Denmark I saw a bold headline in the *Daily Telegraph*: "Unified Service Urged for Care of Aged Sick." Below this was an article on a booklet by C. P. Blacker (1959). His theme is that hospital and local health authorities and family doctors should get together to achieve co-ordination of the services available for caring for the old and infirm—to create a single, unified service. Policy should be decided by local groups of representatives of official and voluntary organizations. He recommends the appointment of an old people's officer, analogous with the children's officer now employed by local authorities.

I was in the capital city of a country which practised co-ordination. I believed wholeheartedly in the urgent need for it in my own country.

Denmark

The Kingdom of Denmark consists of the peninsula of Jutland and 500 small and large islands, about 100 of which are inhabited. The area of the country is some 16,600 square miles (42,994 square km.). Since A.D. 900 it had been an independent kingdom, with the introduction of a constitutional monarchy in 1901, in which freedom of democratic rights is guaranteed. A Parliamentary government has existed since 1901. The central administration is in the hands of responsible ministers and their Departments of State. It is represented in each of the 22 counties by county governors.

Municipal self-government plays an important part. Local authorities (and there are some 1,400 local administrative units) have the sole charge of a number of important tasks, not the least of which is the care of the elderly. The expenditure on social services is in all essentials paid by the municipal authorities, by means of reimbursements from the State.

In 1958 the population was 4,500,700, of whom 456,700 were over 65 years of age. It is calculated that by 1970 the population will have increased to 4,889,100, with 563,600 aged 65 or over.

There are approximately 265 persons per square mile in Denmark, as opposed to 50 in the United States and 530 in the United Kingdom. Approximately 944,100 of the total population live in Copenhagen, which could tend to make administration a little top-heavy.

One hundred years ago the population was 1,400,000. Annual growth in the population is at the rate of about 1%; the birth rate being 18 per thousand, and the death rate 9 per thousand.

In 1955, of 1,385,130 houses, 54,940 contained one room, 368,230 two rooms, and 130,570 six rooms or more. The largest group (425,350) contained four rooms. More than once the handicap of so many small houses was mentioned to me, since this was one of the reasons why families were unable to care for their older relatives.

Administration

The administration of the health service in Denmark comes under the authority of a department known as the National Health Service (I found this most confusing at first). This has a medical director (not a Minister), Dr. Johs. Frandsen, and everywhere I went I heard expressions of respect for and confidence in this man, who corresponds to our Minister of Health. In Britain, where the Minister is looked upon as our employer, we may respect a particular minister yet regard his department with mistrust and misgiving. In Denmark Dr. Frandsen's department (as explained later) does not employ the doctors, and in consequence they look upon him as a colleague to whom they can turn for help, advice, and support, and as one who is as

anxious as they are to create the best possible health service for the community. A positive atmosphere of co-operation exists, whereas in Britain there is the appearance of an almost perpetual schism. In Denmark the public accepts a health service which results from the combined efforts of Health Ministry and doctors—in Britain our patients watch the wrangling that has become almost an accepted adjunct to every step that is initiated by one side or the other to improve the service.

The "National Health Service" of Denmark, as an administrative unit, belongs to the Ministry of Internal Affairs (our Home Office). The Danes regard the problems of health as too widespread and too involved to be collected in one ministry—the consequence is that they have evolved a National Health Service which acts in an advisory capacity to all branches of administration where problems of health are concerned, and, in the case of the elderly, plays such a part to the Ministry of Social Affairs.

All the social services in Denmark are under the control of a Minister of Social Affairs. In each municipality there is a department of social affairs which in larger towns is controlled by a director and in smaller areas by an inspector. The staff of these departments includes a social doctor (I rather gathered that this doctor was usually a psychiatrist and that this was not necessarily proving satisfactory—a less specialized medical opinion often being required).

In 1955–6 the expenditure on the social services amounted to 1,116.4m. kroner by the State and 456.7m by the municipalities (£1 equals 19.36 kr.). Of the social expenditure 40% goes to the old people and represents one-eighth of the total budget—quite a large item.

The total extent of the problem is that the State is caring for 9% (or 8.8%) of the old people, of whom 20,000 are in chronic sick hospitals and 15,000 in old people's homes. There is quite a long waiting-list for State accommodation (a figure quoted to me was that there were between 11,000 and 12,000 flats accommodating about 5% of all old-age pensioners, and there might be a waiting-list of 600, of whom 100 would be in real need).

Old-age Pensions

There are 280,000 old people drawing old-age pensions, or 58% of the total number of persons of pensionable age. The right to pension is not subject to the condition that the person concerned has paid pension contributions. The guiding consideration is that the pension should be sufficient to enable the pensioner to manage without any other assistance from local authorities, private societies, or individuals. *The pensions are subject to automatic adjustment for changes in the cost-of-living index.*

The minimum rate for a married couple is 9% of the average gross income for bread-winners, and two-thirds of that amount for single persons. The cost of these pensions was estimated at about 1,000m. kr. in 1958.

The qualifying minimum age is 62 years for single women and 67 years for all others. Applications for pension may be made from the 60th year in case of infirmity or other special circumstances.

The applicant for an old-age pension must be an active or passive member of a State-recognized health insurance fund or State-supervised health insurance society, and every Danish national is required to be at least a passive member of a health insurance fund. The right to the minimum rate of the national pension is not subject to membership of the national health insurance.

Married couples in Copenhagen receive approximately £260 per annum; in rural areas the equivalent amount would be about £226 per annum. A single person's pension is in the neighbourhood of £170 per annum.

A person may postpone his application for old-age pension, in which case he receives a waiting supplement amounting to 10% of the basic pension at the 70th year, and 15% after the 72nd year (65th and 72nd year for the female).

Care of the Elderly

It is the intention of the Danish Government (as with our Government) that, wherever and whenever possible, the elderly should be cared for in their own homes.

In Pamphlet No. 5 on the Danish Social Structure, published by the Danish Institute, one reads: "With the passing time doubts have been expressed as to the desirability of gathering numbers of old people in large blocks where they have no direct contact with the other citizens of the community." Since 1951, therefore, provision has been made for non-profit-making housing societies to let flats to old-age pensioners at a rent fixed by the Ministry of Social Affairs; the competent local authority makes up the difference in rent to the Society. About 500 flats are let to pensioners in this way, so that they are not confined to a single-group environment but are among people of all generations.

As I have already said, the home accommodation available is often the most serious obstacle. On more than one occasion I asked whether relatives who were anxious to keep their old folks with them but were in financial difficulty could be given any State help. I was told that officially the answer was "No," and that, in fact, it would rarely be necessary, since the elderly relatives would be drawing pensions and might even have a small private income of their own. But I also gathered that "unofficial" help might be given (in one case, for example, relatives were paid 300 kr. a month to help with the maintenance of an aged parent).

The services of the district nurse are available to help in the home, and also the home help. The problem of night care is as difficult in Denmark as in Britain (and is another reason for having to resort to State homes or hospitals).

One of the specific tasks of health visitors in Britain is to look after the elderly, but in Denmark they are not concerned with the older members of the population. They are in short supply. Municipalities are not compelled to have them, and only 66% have accepted them so far, though I was assured that 99% of the population appreciated their services when available. Knowing what a valuable addition these health nurses are to the team in Britain, I felt rather sorry that they could not be more widely used in Denmark.

The Church, which can be so helpful in Britain—arranging for sitting-in, mending, cooking, reading, and so on—did not receive much favourable comment, though there are special Church nurses in some areas. I wondered whether this might be due to the fact that all Danes pay a tax towards the Church, which may, I suppose, tend to give it the flavour of a nationalized industry. I hope this is not too harsh a comment.

There are a certain number of privately owned homes for the elderly run, possibly, by insurance companies

or the like. These, on the whole, seem very satisfactory, One excellent side to these is that the municipality may pay up to 700 kr. a month to retain old people in these homes, rather than move them to a State establishment. I was most impressed by this. The Minister of Social Affairs has a measure of control over privately owned homes and can insist on a certain standard of care.

Old people who cannot get into homes and are living on their own are known to the social affairs department and can therefore be carefully supervised. They have a maintenance allowance, rent allowance, lighting and gas allowance, an extra allowance for special diets, milk, and clothing—all paid through the social committees from public assistance.

The Old People's Town

My first visit was to the Old People's Town in Copenhagen. I must confess to a certain amount of disappointment on seeing this, together with a feeling of apprehension. I was disappointed because, in fact, this is not a town. It is a large old people's institution, divided into three separate sections—for the independent, the semi-dependent, and the dependent. There are no shops.

I was apprehensive because of the vastness of this institution and the inherent danger of the individual old person being swallowed up within its walls, and its very vastness gave it the impression of being shut off from the world—an impression which was encouraged by the fact that the tendency is to take only the "elderly elderly" in here—that is, those in the late seventies and eighties. I was apprehensive, too, because I could see no end to it. Already it is being enlarged, and, so far as I can see, building will never stop, for as soon as one block is finished another will be needed.

My apprehension was shared, I believe, by others. As I have already said, it is now recognized that the ideal environment for the elderly, whether sick or well, is their own four walls in an open community, and nothing could be further from this than the Old People's Town. But, once having started it, there is no hope of stopping its expansion short of its complete destruction—and it would be a brave Dane who suggested such a step after so much has already been spent on the project.

This is painful criticism, for it would be impossible to exaggerate the good intentions that have gone into this "town" and the excellent work that is done there. Those in charge of it have a vocation and are dedicated to the task of doing everything they can to bring comfort to these old people in their declining years. They are undoubtedly succeeding (as they deserve to), but this method of caring for the elderly is, I am sure, quite contrary to modern concepts.

The town has been in use in its present form since 1919 and covers 26 acres (10.5 hectares). There is accommodation for 300 semi-dependent persons and a hospital of 500 beds for the dependent. The remainder are independent, the total inhabitants now numbering 1,650—to be increased to 1,830 when the present new building is completed.

I saw some of these old people in the single-room accommodation for the independent. In these they can be provided with furniture either in whole or in part, according to whether they wish to bring any of their own with them or not. There are four floors to the new building (housing 314), which are connected by lifts. There are small ante-rooms for washing, and section kitchens in which pensioners can provide themselves with extra cups of tea, and so on, if required.

There is a charmingly decorated and furnished sitting-room on each floor, which is equipped with wireless, magazines, and newspapers. In case of emergency a nurse can be called by means of an electrical signal system from each room.

No work is expected of the pensioners, but those who are able and willing to work can be given small jobs to do, for which they receive a little pocket money. I saw the 25 gardens which they can cultivate if they are so minded.

There are very few restrictions. The old people can go to stay with relatives or friends for up to one month at a time, and during the year they are allowed 21 days' board at 2½ kr. a day. There is a library, a church, and an entertainment hall for concerts, theatrical performances, or cinema shows. Pensioners without any private income receive 34 kr. a month as a personal allowance.

The block for the semi-dependent pensioners houses approximately 300 inhabitants. On each floor there are a nurse and two nursing aids. Husband and wife are still accommodated together. The men wear grey suits and the women blue print frocks.

In the hospital section there are 500 beds. The wards have 2 to 10 beds each. Ambulant patients have sitting-rooms and smoking-rooms on each floor, and again husband and wife are kept together. There is a separate building for mentally sick patients, those with confused states, and so on.

Speaking to the matron and to Dr. Lünd, I was impressed by their nursing problem. At present girls are recruited from their homes (or "off the streets," as they said) with no previous nursing experience. There is a general shortage of nurses. Matron is most anxious to have a training school attached to the Old People's Town. Her idea is that these raw recruits should be given a month's training in hygiene and moral principles, then should graduate to the wards for at least a year's hospital training, and finally could stay on in her hospital or be transferred to work in other hospitals coping with elderly people. In this way she would build up a team of fully trained geriatric nurses.

I was particularly excited by this idea, and decided to pursue it. I therefore included it in my list of questions to other people—Was there a place or a need for specially trained geriatric nurses? The Director of the Social School in Copenhagen thought that with the increasing geriatric problem it might soon be necessary to have specially trained nurses both in hospitals and for home visiting. The Senior Medical Officer of Copenhagen agreed that there was a possible place for such nurses, and for the specially trained social worker in this field. In Aarhus the suggestion was also favourably received, but in the Ministry of Health I was told that such training was considered unnecessary. My own view is that it is not only necessary but overdue both here and in Denmark.

From the Old People's Town I went to visit one of the 13 blocks of new flats for the elderly in Copenhagen. This was five stories high and had no lifts. The accommodation for each individual was excellent. There are over 6,000 apartments in these 13 blocks, with some 7,500 inhabitants. Each single person has one room with a kitchenette, the latter being very

conveniently arranged to help the elderly. A married couple have two rooms and a kitchen.

In a separate building there is a delightful hall with modern kitchen and pantry, where pensioners can hold parties on birthdays and other special days—crockery, cutlery, and glass being provided. The rent, which includes central heating, is 64 kr. a month for a single person and 76 kr. for a married couple (their total pension being 452 kr. a month).

I was rather surprised to find that the bathroom was also in a separate block, and to hear that pensioners bathed twice monthly.

Occupants of the flats can also, if they so wish, have their meals supplied for them (one delivery arrived as I was walking round). They are cooked centrally and delivered to the main kitchen, there to be collected in individual small containers at a cost of 2 kr. a meal. I saw one of these meals; it looked very appetizing.

Responsibility

I discussed "responsibility" with a number of people. I have always been afraid of the welfare state contracting this to such small proportions that marked injury is done to community life.

I was told in the Old People's Town that there was a falling off in the responsibility shown by the younger generation for their older relatives. They often had to be cajoled into visiting at all. Visits are precious things to pensioners, and the tendency for relatives to neglect them once they have been taken off their hands by the State is another reason for the condemnation of institutional life for the elderly, for I feel sure that the same lack of responsibility is not shown when parents or grandparents are given municipal flats or houses (whether these be in groups of similar accommodation or in an environment which includes all age-groups). Undoubtedly, as I have said, the modern movement is away from institutions—in Aarhus, for example, the municipality is hoping to make available to the elderly 10% of all new houses built.

In the Ministry of Social Affairs it was pointed out to me that it has never been a legal responsibility in Denmark for relatives to look after parents—it is a moral responsibility only. The moral responsibility is one which should be nourished by the State, and the way to do this, in the first place, is to keep the elderly in their own homes and independent of the State for as long as possible (even though this may entail giving financial and physical help to relatives or friends in some cases), and when, for one reason or another, they become utterly dependent on the State, to house them in such a way that the community can still take a large share in their well-being. This is done for children and invalids—why not for the elderly?

On the whole I gained the impression that there was a lack of responsibility—shown only by the "feckless few," who might stand out more obviously in the welfare state but who nevertheless existed long before it came into being.

Social School and Workhouses

I visited the social school in Copenhagen, where social workers are trained for hospitals, public assistance, children's welfare, maternity aid, employment offices, and the like.

There are 20 "workhouses" left in Denmark. There is one—or what was described as the remainder of one—in Copenhagen. This might have to care for up to 50 people, mostly alcoholics and those who either refuse to accept the State pensions or are too profligate in the use of them.

Aarhus

I travelled to Aarhus by train. All the occupants of my carriage spoke excellent English. During the trip the tremendous pride the Dane has in his country was evident. (At one stage in a journey lasting six and a half hours it seemed that the train might be two and a half minutes late arriving at Aarhus. Fortunately—and I found myself joining in the excitement—the driver made up the time. Had he not done so I am sure there would have been a court of inquiry and a vote of censure. On the way home my train from Harwich to Liverpool Street was 25 minutes late, and only marmalade was served at tea-time. I never turned a hair.) They showed me their new buildings, their magnificent bridges, and their neat and tidy railway stations. They are proud of their welfare state but apprehensive of the level of taxation.

In Aarhus—the second largest city in Denmark—I had a close glimpse of the administration at work (on a Saturday morning). There is no comparable machinery in Britain. Here we divide up our social services so that they are spread over various departments, each under a different ministry, with no statutory allegiance to the others. In Aarhus all the social services come under the one ministry, whose local director, Mr. Jensen, has them in his complete control. We muddle through on an end-product very similar to the Danish pattern, but we should be prepared to learn from the Danes how to create this economically—from the point of view of time, man-power, and money.

On my tour I was escorted by one of the women social welfare workers employed by the local department of social security. She and her colleagues regularly visit the elderly and help them in all their problems.

There are three homes for the elderly in the city—one to house 40 persons (regarded as the ideal size), one with 62 inhabitants, and a third with 225. This latter includes 137 sick-beds, and it is hoped soon to increase these and give this particular home the status of a hospital.

The flatlets, I thought, were ideal (with the exception that they were in three stories, without a lift). The matron in charge was prepared to look after cases of minor sickness, the more serious illnesses being transferred to the general hospital. Included in the "home" was a room for birthday parties, another for the entertainment of visitors, a small "bank" at which pensions could be collected to save walks to post offices, and a doctor's consulting-room.

I went from here to a block of flats housing both healthy old people and invalids. I saw blind residents and some suffering from such diseases as disseminated sclerosis, polyarthritis, and so on. I was very impressed by these flats, and particularly by the kitchenettes, especially designed to help the invalids. Occupational therapy was practised here, and patients were taken to the nearest hospital for physiotherapy, daily living activities, and so on. Home helps were provided either by the insurance clubs or by the municipality.

In addition to these homes, and those run privately, the municipality hopes to obtain 10% of all houses built, so that old people can continue to live in an environment comprising all generations.

Conclusions

After 10 days of fairly intensive study I came to the following conclusions.

That the end-product in both Britain and Denmark—the picture of the welfare state as it is seen by the elderly, and as it is translated for the elderly—is very similar. Denmark has one tremendous advantage in that it provides what Sir Keith Joseph and others so much look forward to in Britain—co-ordination of policy and co-ordination of performance—due to the existence of a Ministry of Social Affairs, with departments of social affairs in the municipalities. I was so impressed by this and, in contrast, so confused by the traditional muddling through in Britain, that when all the pieces have been fitted in and the complete design appears it is surprising to find that old people here are in most respects as well cared for as the elderly in Denmark.

A further advantage to Denmark is that the smaller population can be much more easily organized. But the Danish machinery is so geared that it could cope with any number without impairing efficiency.

In both countries the basic policy is that care should be in the home for as long as possible and that when home care breaks down the alternative provided by the State should be set in an environment which includes all age-groups.

Both countries have, to my mind, set off on the wrong foot in arriving at their objective (or perhaps it would be more truthful to say that both countries had already set off on the wrong foot before they realized their objective) by building "hotels" or "towns" for the elderly which are expensive to run and, no matter how efficient and dedicated the staff, inevitably transfer old people from the security of their own homes to a one-age-group environment; from the seclusion to which they are accustomed to the publicity of "bedrooms" (or wards) which they are expected to share with strangers; to community feeding and a boarding-school atmosphere—all at the age at which they are least able to adapt themselves to change. (I am not the only family doctor, I am sure, who has seen such patients turn their faces to the wall rather than attempt to cope with this type of community existence.)

We have fallen more deeply into this pit than the Danes, for though the "Old People's Town" provides us with the best (or worst) example of this one-age-group existence, yet even here the independent have their own private apartments until such time as they come to need constant care and supervision. Whereas in our "hotels," provided with television, lawns, writing-rooms, and the minimum of rules and regulations, not a trace can be found of the original home atmosphere from which the elderly inmate has been torn.

Moreover, Denmark is ahead of us in the measures taken to retain the elderly in their own homes: subsidizing flat or house rentals; supplementing allowances in privately owned nursing-homes; giving "unofficial" help to relatives, and so on. They have the handicap of too many small houses and an inadequately matured health-visitor service.

I should like to see a proportion of all new houses built in this country set aside for the elderly, who should be made more financially secure by having their pensions adjusted according to the cost-of-living index—as in Denmark.

In both countries there is a need for more trained geriatric nurses and social workers, and there is a vital need for night care—without which care in the home inevitably breaks down sooner or later.

In short, though the end-result to the elderly may be the same in both countries, the Danes have more reason to be proud of their organization than we have, and we have much to learn from them.

I called on the Secretary of the Danish Medical Association (Dr. Fenger), the Ministry of Social Security, the National Health Service (Department of Health), the principal of a social school (Mr. Watt Boolsen), the Director of Social Security for Aarhus (Mr. Orla Jensen), the Chief Medical Officer for Copenhagen (Dr. Inge Jespersen), a distinguished general practitioner whose particular interest is in rehabilitation (Dr. F. E. Backer, to whom I am particularly grateful for his detailed description of the Danish National Health Service), the Medical Director and the Matron of the Old People's Town in Copenhagen (Dr. Lünd and Miss Ib-Hanson), and others. I was generously entertained by Dr. Hübner, the chairman of Messrs. Lundbeck & Co. I took every possible opportunity to speak to "ordinary" men and women whom I met on particular occasions, so that I could get the views of the "man in the street" on the welfare state in which he lived.

Finally, I must record my very sincere gratitude to the British Embassy for the tremendous help given to me in arranging my programme, and for the entertainment given to those whom I visited; to the Secretary of the British Medical Association (Dr. D. P. Stevenson) for so kindly warning Denmark of my impending visit; to the College of General Practitioners for allowing me to represent them during my tour; to the Danish Institute; and to the British Council.

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SUBACUTE BACTERIAL ENDOCARDITIS

BY

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This investigation began with a review of blood cultures in subacute bacterial endocarditis (S.B.E.) to determine the frequency with which the first cultures were positive. If the early cultures were usually positive it might be possible to recommend beginning antibiotic treatment before the results of culture were known.

In addition to the results of blood culture, we report some of the clinical features and the treatment of all cases of S.B.E. admitted to the United Bristol Hospitals during a period of eight and a half years. Five patients had been thought to have S.B.E., with persistently negative blood cultures, and their cases are considered in detail.

Plan of Study

The results of every blood culture performed between January 1, 1950, and July 31, 1958, were scrutinized and the hospital clinical records were studied of all patients in whom the diagnosis of S.B.E. had been made. Those with positive blood cultures are described in the first part of the paper. The second part deals with patients whose blood cultures were negative. As every blood culture has been recorded we feel that we have

discovered every case of S.B.E. that occurred during the period of the study.

Two patients who did not have blood cultures taken before treatment was started and one who was first treated in another hospital and was admitted here in relapse have been omitted.

Patients with Positive Blood Cultures

There were 60 patients with evidence of arterial embolism and at least one positive culture: 11 of them had two attacks and one had three. Six who were observed in their second attack had had their first before 1950, and records of their earlier blood cultures were not available. Thus our study covered 67 bacteriologically proved attacks of S.B.E.

Blood Culture.—5 ml. of blood was added to each of two bottles, one containing 300 ml. of heart-infusion broth and the other 300 ml. of a modification of Brewer's (1940) thioglycollate broth. Usually, also, 1 ml. of blood was taken into sterile citrate solution to which nutrient agar was added and a plate poured as soon as possible. The risk of contamination was minimized by the clinical pathologists themselves performing the venepuncture and by avoiding frequent subculture during incubation. The cultures were examined daily by an experienced technician who made smears and put up subcultures when visible growth appeared or, if not, after 12 to 14 days' incubation. Penicillinase was incorporated in the medium when necessary.

Results

A positive culture was obtained from the first specimen in 63 of the 67 attacks. The first culture made from two of the remaining four attacks was invalidated by contamination, and from each of these the second blood culture was positive. The other two failures were from patients who had recently received penicillin (see below).

Excluding the two recently treated patients, a total of 166 blood cultures were made from 65 attacks; 164 were positive and two were spoiled by contamination.

The infecting organism in 58 of the 67 attacks was a *Streptococcus viridans*, and in all but two it was sensitive to penicillin (minimum inhibiting concentration between 0.01 and 0.04 unit/ml.). One penicillin-resistant *Str. viridans* (M.I.C., 0.5 unit/ml.) was isolated from the blood of a patient who had been taking 120 mg. of phenoxymethylpenicillin by mouth three times a day for the previous 18 months, to prevent the recurrence of acute rheumatism.

The organisms responsible for the other nine attacks were: *Staphylococcus aureus*, three attacks; *Staph. albus*, three attacks; *Str. pneumoniae*, *Str. faecalis*, and a diphtheroid (*Corynebacterium hofmannii*), once each. The aetiological role of the diphtheroid was very well substantiated, with six positive blood cultures. In this group only the *Str. faecalis* was resistant to penicillin.

There were no mixed infections.

Second and Third Attacks.—Eleven patients were known to have second attacks and one a third. All seemed to be new infections rather than recurrences. Two of the 11 patients who had formerly had streptococcal infections became infected again—one with *Staph. aureus*, the other with a diphtheroid bacillus.

Effect of Fever on Blood Culture.—It is common clinical practice to take blood for culture at the height of the fever. If, however, the bacteraemia is constant, as our findings suggest, the cultures should be positive at all times. This has been our experience. Though most patients were febrile every day until treatment was started, in 22 instances the temperature charts showed no fever on days when positive blood cultures were obtained. One patient with three positive cultures was afebrile throughout his illness.

Effect of Penicillin on the Blood Culture

Two patients whose first cultures were negative had received penicillin earlier. One had been treated with 1.5 mega units daily for eight days, and the first culture, two days after stopping treatment, was negative. The next, five days later, was positive.

The other patient had signs of mitral- and aortic-valve disease and a chest infection. Her doctor had given her an injection of 600,000 units of procaine penicillin immediately before sending her to hospital. A blood culture taken on admission was sterile. Further treatment consisted of 1 mega unit of penicillin daily for four days, followed by chlortetracycline orally for eight days, and then an injection of 1.5 mega units of benzathine penicillin with the object of preventing a further attack of acute rheumatism. Blood cultures were taken 9, 16, 25, and 31 days after this injection. The first three were sterile, but the last yielded a penicillin-sensitive *Str. viridans*. Despite intensive penicillin therapy the patient died, and S.B.E. was found at necropsy. This experience suggests that when a patient with rheumatic or congenital heart disease develops any febrile illness which may require prolonged treatment blood cultures should first be taken.

During penicillin treatment of S.B.E. caused by a sensitive organism the blood usually remains sterile. Of 66 cultures taken from bacteriologically proved cases after treatment had begun, only one was positive. These cultures were requested because of continuing or recurring fever despite treatment. The fever could usually be attributed to the shedding of emboli rather than to the persistence of bacteraemia. If the infecting organism was initially sensitive to penicillin, attempts to isolate it from the blood during treatment are almost certain to be in vain, even when penicillinase is used. A negative culture under these circumstances gives no assurance that the antibiotic is successfully destroying the organisms in the depths of the vegetations. The laboratory should not be burdened with requests for blood cultures during treatment unless there is reason to believe that the sensitivity of the organism has changed; and this is a rare occurrence.

Sources of the Infecting Organisms

Ten patients gave a history of recent tooth extraction without penicillin cover, in one case before each of two attacks. It is clear, therefore, that despite the fact that danger of extracting teeth without antibiotic cover had been recognized for many years, the risk was not infrequently taken, and contributed appreciably to the incidence of bacterial endocarditis.

One patient with a *Staph. aureus* endocarditis had had a boil on the hand shortly beforehand. The one *Str. faecalis* infection resulted from the dilatation of a urethral stricture.

The Underlying Lesion

Chronic rheumatic heart disease was thought to be the underlying lesion in 40 of the 60 patients. Of these 40, 21 had the signs of mitral-valve disease only, aortic incompetence alone was found in 1, and in 18 there was evidence of damage to both valves.

A further eight patients had aortic-valve disease of uncertain causation. One came to necropsy, and no evidence of rheumatism was found. All but one had aortic systolic murmurs.

There were 12 patients with congenital heart disease, including four with ventricular septal defects, three with pulmonary stenosis, and two with coarctation of the aorta.

Treatment

Treatment consisted of 2 mega units of penicillin daily, injected intramuscularly in four- or six-hourly doses for six weeks.

One infection by a *Str. viridans* resistant to 0.6 units of penicillin per ml., was treated successfully with 16 mega units of penicillin daily, in three-hourly doses, and with erythromycin as well by mouth. Another, with a streptococcus resistant to 0.5 unit/ml., recovered after treatment with 20 mega units of penicillin daily, sometimes with six-hourly injections and sometimes by continuous intravenous drip, together with 1 g. of streptomycin twice a day, and probenecid.

Prognosis in First Year

Treatment was given for 67 attacks. There were five deaths during treatment, of which one was in a second attack.

Of the 62 patients who left hospital 57 (85%) survived for one year or more. This is a higher proportion of one-year survivors than in Dormer's (1958) series of 51 patients, of whom 30 (59%) survived. The two groups were similar in age and sex distribution and in average duration of symptoms before starting treatment. However, all of the present cases were treated after 1950, when the results and recommendations of the M.R.C.'s Penicillin Trial Committee were known (Christie, 1949), whereas Dormer's series began in 1945, and it may be presumed that his earlier cases received treatment that would now be regarded as inadequate.

The unfavourable prognosis of infection of the aortic valve is illustrated in this series. Ten of the 14 patients known to have died in the first year or later had aortic-valve disease either alone (5) or in combination with a mitral lesion (5). Only 2 of the 21 patients with mitral-valve disease alone are known to have died. The two other deaths were in patients with congenital heart disease.

Patients with Negative Blood Cultures

The results of every blood culture taken in the hospital between January 1, 1950, and July 31, 1958, were reviewed in order to ensure that no possible case of S.B.E. was overlooked. Apart from the bacteriologically positive cases already described, the diagnosis had been suspected strongly enough for three or more blood cultures to be taken from 60 other patients. Their case records showed that 56 were given no antibiotics, and, of these, one died in hospital with evidence of S.B.E. revealed at necropsy (Case 1, see below). The other untreated patients left hospital, and most were observed for long enough to exclude the diagnosis of S.B.E. There remained four patients who were given full courses of penicillin, despite negative blood cultures, and they, together with the untreated patient who came to necropsy, were the only likely examples of bacteriologically negative S.B.E. which we could discover, and are described in detail.

Case 1

A man of 40 had had chorea at the age of 7, and was subsequently rejected for military service. When 35 he was referred to hospital with a complaint of giddiness, and was found to have mitral incompetence and aortic stenosis and incompetence. Three years later he again complained of giddiness and other symptoms that were attributed to Ménière's disease, and for this he was treated with 6 g. of streptomycin injected daily for eight days. He returned home to develop in the next nine months increasing lethargy, loss of weight, shivering attacks, and profuse nocturnal sweats. He was readmitted to hospital with heart failure. Gross clubbing of the fingers and splenomegaly developed, and a splinter haemorrhage occurred under one nail. There was a low-grade fever, and a few petechiae appeared on the sole of the right foot. During the course of 13 days eight blood cultures were taken, but all were sterile. He developed pulmonary oedema and died before antibiotics could be given.

At necropsy, Dr. D. H. Johnson found that the mitral-valve cusps were thickened and fibrosed, and the aortic valve was severely stenosed. There were small vegetations on the mitral valve. At the base of the aorta there was a large area of ulceration which appeared to be an infected aneurysm. On microscopy of sections stained by Gram's method, however, no organism could be seen, nor could any be demonstrated by aerobic or anaerobic culture. The wall of the aneurysm was covered with fibrin and granulation tissue, invaded by a few polymorphs. The appearances suggested a healing infection.

Comment.—This case could well be an example of the bacteriologically negative S.B.E. described by Libman (1913). Alternatively, the streptomycin given nine months before death could conceivably have destroyed the organisms. Evans *et al.* (1959) have shown that *Rickettsia burneti* can cause infective carditis with negative blood cultures. This possibility, unknown to us at the time, has not been excluded.

Case 2

A man of 28 presented with haematuria, oedema of the ankles, and hypertension; a diagnosis of acute glomerulonephritis was made. His oedema and haematuria disappeared, but on his discharge from hospital the urine still contained albumin and occasionally red cells, and the E.S.R. was raised.

Four years later he was readmitted, again with haematuria, hypertension, and an apical systolic murmur. There was an irregular fever. The diagnosis of S.B.E. was considered, and was thought to be confirmed when a small number of petechiae appeared on the fingers at intervals of a few days. Seven blood cultures were taken, but all were sterile. Treatment with penicillin, 2 mega units daily, was given for six days and then stopped. In the next 14 days eight more blood cultures were taken; all remained sterile except for two bottles, from one of which a yeast was isolated, and from the other a micrococcus. Penicillin therapy was begun again and continued for six weeks in doses of 1 mega unit every three hours, together with probenecid. There was no very striking response to treatment, but the fever gradually subsided, and no more petechiae were seen. The E.S.R. remained high, and since leaving hospital the patient has continued to show evidence of chronic glomerulonephritis. On reviewing the case, the only finding that cannot be explained on the basis of glomerulonephritis alone was the occurrence of petechiae.

Case 3

A housewife of 30 had had rheumatic heart disease from the age of 6 years. In the five weeks before admission to hospital she had noticed increasing breathlessness, swelling of the ankles, pain in the chest, and haemoptysis. There was considerable enlargement of the heart with signs of a severe mitral-valve lesion, and a low-grade fever. The urine contained albumin and red cells. Petechiae were thought

to be present in small numbers on the trunk. There was early finger-clubbing. Three blood cultures were taken; all remained sterile. In spite of negative cultures a full course of penicillin was given. After treatment she had pains in the knees, hands, and elbows, and a high E.S.R. These features were thought to be due to a recurrence of acute rheumatism. On discharge from hospital the E.S.R. remained high.

Case 4

A man of 40 developed a cough and shortness of breath which kept him away from work for a week. He returned to work but felt ill and tired and began to sweat at night. He was admitted to hospital six weeks after his symptoms began. He was pale, and had many carious teeth. The heart was enlarged and there was a systolic thrill over the aortic area and an aortic diastolic murmur. The pulse was collapsing in type. There were no petechiae, no finger-clubbing, and no fever while in hospital. The blood Wassermann and Kahn reactions were strongly positive. A small haemorrhage appeared in one optic fundus, and this, together with the presence of scanty red cells in the urine deposit, was taken as evidence of emboli. Ten blood cultures were taken, but all were negative. He was treated with penicillin for six weeks and his symptoms improved. He died at home five years later.

Comment.—The findings in this case were probably the result of syphilitic aortitis. There was little to suggest S.B.E., but because of the evidence of emboli it was thought wisest to give a full course of penicillin.

Case 5

A 46-year-old policeman had three attacks of sudden breathlessness accompanied by haemoptysis. He was admitted to hospital for blood cultures to be taken. In addition to the signs of mitral stenosis and aortic stenosis and incompetence, there was obvious finger-clubbing. No embolic phenomena were discovered. For three days he ran a fever between 99.4 and 100.2° F. (37.4 and 37.9° C.). The E.S.R. was persistently raised. A few petechiae appeared on the shoulders and others appeared a few days later. On one occasion the spleen was thought to be palpable. The urine was normal. Five blood cultures were sterile. He was treated with penicillin for six weeks with little change in his general condition. The E.S.R. remained high. At the time of his discharge from hospital it was thought that he probably had not had bacterial endocarditis. He remained ill and breathless, and died of heart failure six months after finishing his penicillin treatment. At necropsy, performed by Dr. E. J. Harries, no signs of bacterial vegetations were found on the stenotic mitral and aortic valves. There were multiple pulmonary infarcts, some recent, some of longer standing.

Comment.—The clinical diagnosis of S.B.E. in Cases 2–5 was made on the basis of a heart murmur with one or more of the following: fever, splenomegaly, petechiae, haematuria, clubbing of the fingers, and a high E.S.R. However, any of these may occur in the absence of bacterial infection, and we observed one patient who showed all these features but did not have S.B.E.

Case 6

This patient, a man of 58, was admitted to hospital with fever and breathlessness. There were signs of chronic rheumatic heart disease with aortic stenosis and incompetence. Gross clubbing of the fingers was present. The spleen was palpable. Retinoscopy revealed a small haemorrhage in the retina, and he developed a sudden pain in the left calf which was diagnosed as being due to embolism of a calf vessel. The dorsalis pedis pulse was absent; E.S.R. 65 mm. Pus cells and Gram-negative bacilli were found in the urine. Six blood cultures were sterile. He was given a sulphonamide for five days for his urinary infection but no other chemotherapy. He was discharged home, but was readmitted four months later with left ventricular failure and died. Necropsy revealed evidence of rheumatism of the mitral and aortic valves, but no vegetations were found.

Discussion

Before any antibiotics are given, blood cultures should be taken from every patient who might have S.B.E., otherwise the correct treatment may be dangerously delayed. In many cases of S.B.E. a delay of a few days is permissible, but when treatment is required urgently the question arises of how many blood cultures should be taken to ensure the recovery of the organism. Once enough cultures are incubating, treatment may be safely begun. Our experience suggests that, except in those cases whose cultures are always negative, a positive culture can be obtained on nearly every occasion. All the 164 blood cultures taken without contamination from 65 bacteriologically proved untreated cases of S.B.E. were positive. Thus it appears that three cultures, if necessary taken on the same day, should normally be sufficient, even though one be contaminated. The constancy of the bacteraemia suggests that it is not essential to wait for the temperature to rise above normal before taking blood from a patient who is temporarily afebrile. But if antibiotics have already been given there can be no certainty how soon the organism will be isolated.

Several writers have found that the bacteraemia in some cases of S.B.E. is not constantly demonstrable. Cates and Christie (1951) reported that, of 83 cases, positive cultures were obtained in 68 at the first attempt, in 7 at the second, in 7 at the third, and in 1 at the fourth. Newman, Torres, and Guck (1954) found that, of 32 untreated patients, 24 gave constantly positive cultures, while in 8 the positive cultures were intermittent. Belli and Waisbren (1956) found the first culture to be negative in 23 of 74 untreated patients, all of whom gave positive cultures later. On the other hand, Dormer (1958) reported that 44 out of 48 proved cases gave positive cultures at the first attempt. He does not state whether the failures were due to contaminants. Thus the results reported by Dormer are essentially similar to ours, and point to the constancy of bacteraemia in S.B.E.

The problem of the patient with clinical evidence of S.B.E. but with negative blood cultures is peculiarly difficult. Such cases fall mainly into two groups. The first was described by Libman (1913), who reported 22 patients, of whom 16 came to necropsy. Most had had one or two negative blood cultures in life, and post-mortem examination of the vegetations revealed no organisms. Five features were prominent in the clinical picture-anaemia, brown pigmentation of the face, renal disease, splenomegaly, and phenomena due to detached vegetations. Libman suggested that the heart lesion was healing and had gone into a bacteria-free stage. Libman and Friedberg (1948) described further cases with large vegetations containing no organisms, and stated their belief that healing commonly occurs to some extent in untreated S.B.E.

The second group of bacteriologically negative cases are those with no demonstrable bacteraemia but with bacteria in vegetations at necropsy. Keefer (1937) described 15 such cases. There was nothing to distinguish individual cases from those with positive blood cultures, and at necropsy the vegetations in the two types were identical. Keefer suggested that the negative cultures were due to high levels of bactericidal antibodies.

The description of endocarditis in Q fever (Evans *et al.*, 1959) shows the importance of looking for evidence of infection by microbes other than bacteria.

Our difficulty in finding convincing cases of bacteriologically negative S.B.E. in a period of eight and a half years was surprising. In the M.R.C. series (Cates and Christie, 1951) there were 408 cases proved by blood culture and 34 others, from six centres, with negative cultures. The clinical features of those 34 strongly suggested bacterial infection, and vegetations were found on the heart valves of all 15 who came to necropsy. Other published series include the following proportions of cases in which no positive blood culture was obtained: Newman *et al.* (1954), 33% ; Wedgwood (1955), 10% ; Dormer (1958), 23%. Friedberg (1950) states that blood cultures may be persistently negative in 10–30% of cases. In our series there was one patient (Case 1) who resembled those described by Libman (1913). Here, unfortunately, the picture was confused by the fact that he had earlier had a course of streptomycin. There were four others, with negative blood cultures, who conceivably may have had S.B.E. ; in only two of them was the diagnosis considered likely, and in neither was it made with confidence.

Unless the technique of blood culture is satisfactory, a diagnosis of bacteriologically negative S.B.E. must be especially doubtful. The occurrence of cases with intermittently positive blood cultures should suggest a review of technique. Our method with large volumes of medium have been satisfactory, but smaller volumes of liquid broth (Stokes, 1955) should be as good. It is essential to use anaerobic as well as aerobic medium. The use of the two bottles of broth, as well as a plate culture, simplifies the distinction between significant organisms and contaminants. Skill in venepuncture, a careful aseptic technique at the bedside, and daily scrutiny of the cultures during incubation are important.

Any patient who is considered on clinical grounds to have S.B.E. must be given antibiotic treatment, even when a thorough bacteriological investigation fails to confirm the diagnosis. But before the diagnosis is finally accepted all the alternatives should be considered, especially if the response to treatment is inconclusive. Our difficulty in finding convincing examples of bacteriologically negative S.B.E. leads us to suggest that the condition is rarer than has been supposed.

Summary

Sixty-seven attacks of subacute bacterial endocarditis confirmed by positive blood culture are recorded. Brief reference is made to the clinical features, treatment, and progress in the first year after treatment. The bacteraemia was constant. The only sterile cultures were obtained from two patients who had previously had penicillin administered. Two further cultures were spoiled by contaminants. Provided no antibiotic has been given three blood cultures should suffice to isolate the infecting organism, and treatment can be begun before the results of the culture have been reported.

Only five possible examples of S.B.E. with persistently negative blood cultures were found. One died before any penicillin was given. There were no organisms in the vegetations found at necropsy. The four others were treated with a full course of penicillin and recovered: in two the diagnosis was doubtful and in two signs of embolism were unconvincing.

It is thought that S.B.E. with persistently negative blood culture is less common than has been supposed.

We are grateful to the physicians who allowed us to study their patients. Special thanks are due to Professor C. Bruce Perry, Dr. D. H. Davies, and Dr. J. E. Cates for their constructive criticism, and to Mr. L. J. Waller for technical help.

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REED–STERNBERG CELLS IN THE PERIPHERAL BLOOD AND BONE-MARROW IN HODGKIN'S DISEASE

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Hodgkin's disease is, as a rule, associated with enlargement of lymph nodes which are either palpable or ascertainable by radiography. Splenomegaly is often found. The reticulum of the bone-marrow can also participate in the pathological process, and the involvement of the sternal marrow is then revealed by a circumscribed tenderness of the sternum and sometimes also by presternal oedema. There may or may not be accompanying constitutional symptoms and signs.

In the so-called abdominal form, in which one or several of the deep-lying abdominal lymph-node groups are the only ones to be enlarged to any extent, the diagnosis may on occasion be entirely unsuspected clinically.

Two cases of this latter type are reported: both presented as pyrexia of unknown origin with a macrocytic anaemia, leucopenia, and thrombocytopenia. In neither of the patients were the superficial and mediastinal lymph nodes enlarged, nor was the spleen palpable. In the first case, thought to be a perforated peptic ulcer, the diagnosis was revealed by the finding of Reed–Sternberg cells in the peripheral blood films; in the second, an obscure macrocytic anaemia, the pathognomonic cells were identified in the marrow aspiration material.

Case 1

A 58-year-old labourer was admitted to hospital on February 21, 1956, with a history of abdominal tenderness and colic of one week's duration. He had apparently collapsed at work six weeks previously. He had lost weight and vomited the day before and on the day of his admission.

He was running a temperature of 103° F. (39.4° C.) (Fig. 1) and looked pale and emaciated ; B.P. 90/70. There were

a few scattered petechial haemorrhages on the skin, and the ankles were oedematous. The tongue was coated and dry. There were signs of consolidation over the right lower lobe and a marked generalized abdominal tenderness without guarding.

It was thought that he had a perforated peptic ulcer which had sealed itself off; this was confirmed by finding

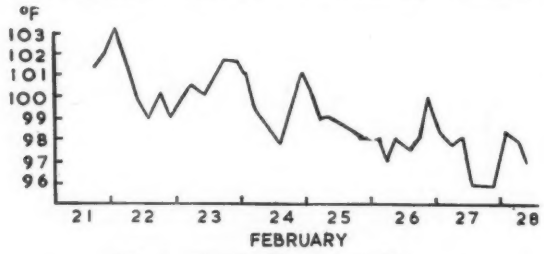
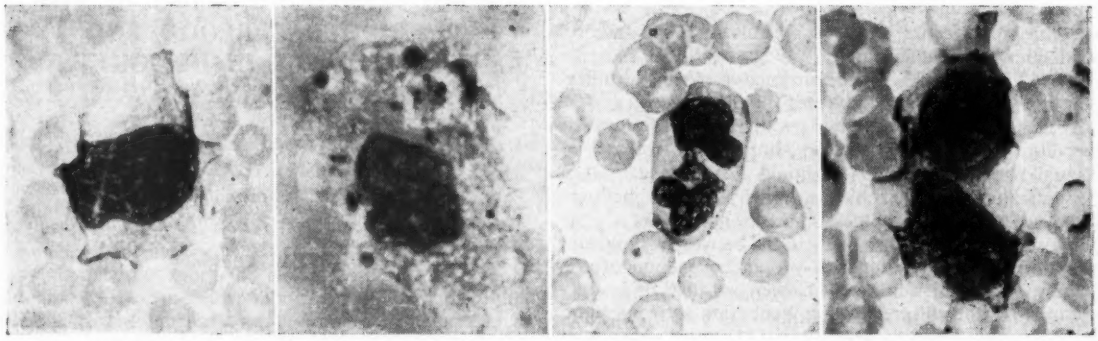


FIG. 1.—Case 1. Temperature chart.

air under the diaphragm. He was treated conservatively with penicillin, 500,000 units six-hourly. His condition, however, declined rapidly and he died on the eighth day after admission.

Post-mortem Examination (Dr. A. J. N. Warrack).—This showed the immediate cause of death to be lobar pneumonia. No actual ulcer was found, but pyloric and duodenal adhesions were compatible with the clinical diagnosis of perforated ulcer. Lymph nodes in the mesentery and mesocolon were enlarged, soft, and of grey-colour. No hepatomegaly or splenomegaly.

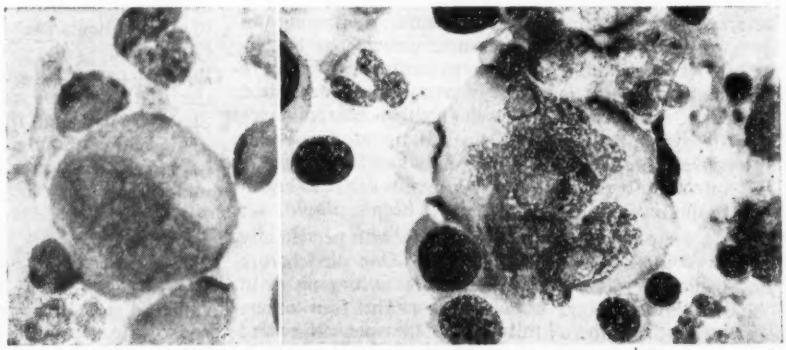
Histology.—The lymph nodes, spleen, liver, lungs, and bone-marrow (femur) showed invasion by malignant tissue composed mainly of bizarre, polymorphous cells, many of giant dimensions, with multiple nuclei and striking nucleoli. Capillaries in the lungs and lymph nodes and small arteries in the lungs were found to contain these cells (Figs. 8–10). The mesenteric lymph node examined showed a massive focus of autolysis, but there was plenty of surviving tissue with preservation of the Malpighian follicles. Between these the lymphoid tissue was replaced by a loose network of chiefly Dorothy Reed cells and large reticulum cells. The spleen showed foci of autolysis (necrosis of Malpighian bodies) and also small foci of Hodgkin tissue at the periphery of the Malpighian bodies, in the capsule, and, in a few places, in the trabeculae. The liver showed infiltration of the portal spaces, and giant cells were seen in the sinusoids. Histological diagnosis: Hodgkin's sarcoma (acute Hodgkin's disease).



FIGS. 2–5 (×880).—Case 1. Peripheral blood showing Reed Sternberg cells of various sizes (25–55μ) and shapes. Figs. 2 and 3, with one nucleus. Fig. 4, with a nucleus of bizarre shape. Fig. 5, with two nuclei. The nucleoli are large and clearly visible in most cells. Fig. 3 shows phagocytosed particles.

Laboratory Findings.—Blood counts (ranges from counts on five different days): Hb, 8.7–10.7 g./100 ml.; R.B.C. 2,470,000–2,970,000/c.mm.; reticulocytes, 0.8–2%; normoblasts, 0–2/100 W.B.C.; P.C.V., 29%, M.C.V., 117.4 cubic microns, M.C.H.C., 29%, M.C.H., 33.5 $\mu\mu$g.; W.B.C., 2,400–7,800/c.mm. (neutrophils 1,728–6,396, monocytes 96–325, lymphocytes 250–858/c.mm.). Giant histiocytes and Reed-Sternberg cells, 1 to 3% of white cells (Figs. 2–5).

Sternal Puncture. (February 23).—The leuco-erythrogenic ratio (Pontoni) was 1.42. About one-fifth of the nucleated red cells showed a megaloblastic nuclear pattern, giant neutrophils (segmented, band, and metamyelocytes) were numerous. The number of megakaryocytes was increased; many were very large and multisegmented, others having one single voluminous convoluted nucleus. In addition to a slight increase of various reticulum cells, some of which were phagocytic, typical Reed-Sternberg cells of various shapes and sizes were found scattered among other marrow elements (Figs. 6 and 7). Serum vitamin B_{12} level, 820 $\mu\mu$g./ml.



FIGS. 6 (×880) and 7 (×750).—Case 1. Bone-marrow: Reed-Sternberg cells (one in each figure), megaloid erythroblasts (in Fig. 7).

Case 2

A woman aged 69 was admitted to hospital on October 20, 1956, with a history of increasing fatigue for about a year, dyspnoea and swelling of ankles for six months, and flatulent dyspepsia for many years. In June–August, 1956, motions were more frequent than usual and appeared "frothy" (?). She had been having iron by mouth and vitamin B_{12} ("cytamen") injections for the previous 12 days.

On admission she was very pale and thin, with Paget's disease of the right femur, kyphosis, and rheumatoid

changes of the extremities. Jugular venous pressure was raised and the ankles were oedematous. There was a harsh systolic murmur, maximal at the apex. The lower half of the sternum was very tender on pressure. No other abnormalities were detected. It was felt that she might be suffering from steatorrhoea, and at first this diagnosis seemed to be supported by the haematological findings. The temperatures (Fig. 11), however, were unaccounted for until the discovery of Reed–Sternberg cells in the marrow aspiration.

The patient was treated with penicillin and folic acid by injections and was given transfusions. She died apparently of a cerebrovascular incident 11 days after admission.

Laboratory Findings.—Blood counts: a macrocytic anaemia was found with very large red cells, many of which contained Howell–Jolly bodies and/or Pappenheimer bodies (siderocytes + + +) (Fig. 12). Heinz bodies were also seen. Nucleated red cells, mainly with pyknotic nuclei, were numerous and reticulocytes were increased. Leucopenia (neutropenia) and thrombocytopenia were present. Hb. 4.5–5.6 g./100 ml.; R.B.C., 1,000,000–1,330,000/c.mm.; reticulocytes, 9.3–11%; nucleated R.B.C., 2,500–5,700/c.mm.; platelets, 6,000–9,000/c.mm; W.B.C., 1,700–3,500/c.mm. (neutrophils 350–780, monocytes 260–884, lymphocytes 816–2,210/c.mm.) (all figures are ranges of six blood counts); P.C.V., 20%; M.C.V., 150 cubic microns; M.C.H.C., 31.5%; M.C.D. >9μ.

Sternal Puncture (October 23 and 27).—Hyperplastic, mainly macronormoblastic erythropoiesis, with a number of intermediate megaloblasts and numerous iron granules in both nucleated and non-nucleated red cells. Leucopoiesis rather hypoplastic. L/E ratio 0.1. Platelet-formation reduced despite a numerical increase of megakaryocytes, many showing abnormal features such as unusually large size, with a great number of nuclear segments or a large convoluted nucleus occupying most of the area of the cell.

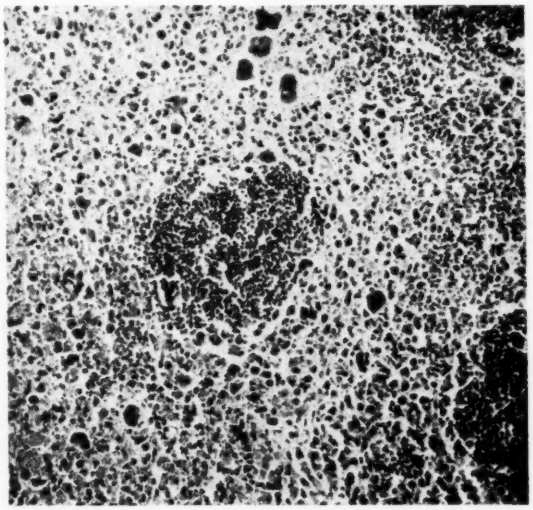


FIG. 8.—Case 1. Mesenteric lymph node. A follicle surrounded by tumour tissue with Reed–Sternberg giant cells. (×95.)

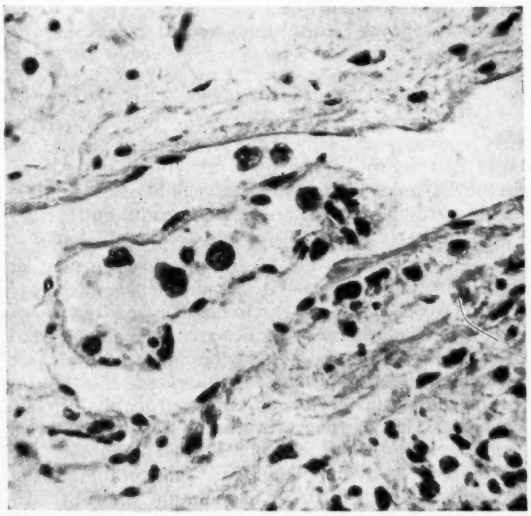


FIG. 9.—Case 1. Capillary on the periphery of the same lymph node containing reticulum cells and Reed–Sternberg cells (× 300.)

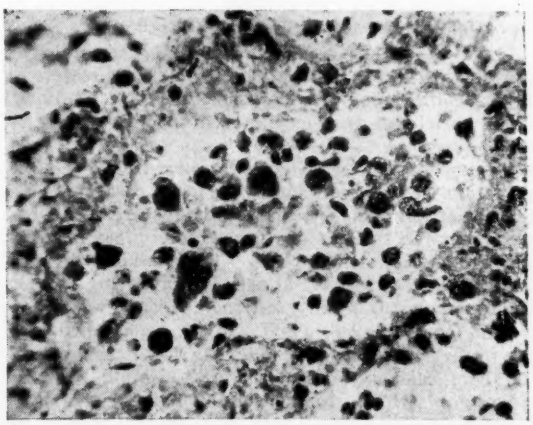


FIG. 10.—Case 1. Small artery in lungs filled with similar cells. (× 368.)

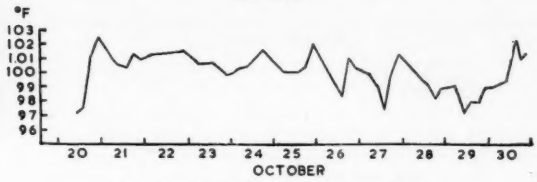


FIG. 11.—Case 2. Temperature chart.

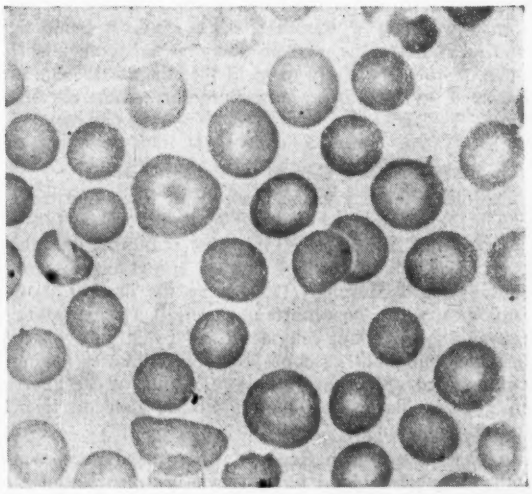


FIG. 12.—Case 2. Macrocytosis, Howell–Jolly and Pappenheimer bodies (peripheral blood). (× 1,150.)

Lymphocytes and reticulum cells increased in number. Reed–Sternberg cells present in some of the marrow smears on both occasions.

Biochemical Findings.—Fractional test-meal, free hydrochloric acid present. Serum alkaline phosphatase, 72 King–Armstrong units. All other liver-function tests normal.

Post-mortem Examination (Dr. Warrack).—Neither the liver nor the spleen (100 g.) were found to be enlarged and there was no marked lymphadenopathy. Histology confirmed the diagnosis of "lymphadenoma" (senile type), Reed–Sternberg type giant cells being present in portal, mesenteric, para-aortic, and axillary lymph nodes. Megakaryocytes were also seen in the para-aortic lymph node examined. The spleen showed loss of follicular pattern and a few patches of Hodgkin tissue with Reed–Sternberg cells.

Discussion

Reed–Sternberg Cells in the Bone-marrow

Until recently it was believed that haematology's contribution to the diagnosis of Hodgkin's disease was almost entirely non-specific (Limarzi and Paul, 1949). While this holds true in the great majority of cases for the peripheral blood, reports on the cytological demonstration of Reed–Sternberg cells in bone-marrow aspirations have been accumulating in the past few years. This is not surprising, considering the relatively frequent involvement of the bone-marrow as ascertained by post-mortem studies (Steiner, 1943). The specific cells were found almost exclusively at sites tender on pressure or slight percussion, while presternal oedema was often present (Varadi, 1938, 1955). It has been stated that it is in the acute forms of Hodgkin's disease that Reed–Sternberg cells are found in the aspiration material (Bayrd *et al.*, 1954). In eight personal cases the clinical duration of illness varied from just under 2 months to more than 54 months (see Table).

Duration of Illness in Relation to Sternal Puncture in Eight Cases of Hodgkin's Disease

Before	After
1 month 2 weeks	1 week (Case 1)
3 months 2 ,,	12 months
4 ,,	2 ,,
8 ,,	1 month 1 week
12 ,,	1 week (Case 2)
17 ,, (?)	3 months
36 ,, (?)	?
54 ,, (?)	?

In six followed-up patients whose bone-marrow had been found to be involved the survival periods ranged from 1 week to 12 months. As a whole it could be confirmed that cases with an acute or subacute febrile course were more likely to yield the diagnostic cells in smears of aspirated bone-marrow than the more chronic "cold" cases.

Reed–Sternberg Cells in the Peripheral Blood

The first reference to the presence of Reed–Sternberg cells in the peripheral blood was made by Isaacs (1944). Ludman and Spear (1957) showed photomicrographs of such cells in a case of known Hodgkin's disease. Jeanselme and Marchal (1926) were the first to show histologically (on post-mortem material) a "metastatic dissemination of giant cells described by Sternberg" in an acute malignant case of Hodgkin's disease, having demonstrated numerous emboli consisting of Sternberg cells in capillaries of lymph nodes, spleen, liver, pancreas, and lungs.

In Case 1, in which Reed–Sternberg cells were seen in the peripheral blood films, they were also found in capillaries of mesenteric lymph nodes and lungs, and in small pulmonary arteries. They must have crossed the pulmonary circulation to reach the peripheral blood. The invasive neoplastic type of the lesions is probably responsible for the cells making their appearance in the circulation. There is an analogy with lymphosarcoma, in which pathological cells often find their way into the peripheral blood, especially in advanced stages of the disease ("leucosarcoma").

The morphology of the Reed–Sternberg cells is typical of Hodgkin's disease. It permits a cytological differentiation of this disease, even in its sarcomatous form, from cases of polymorphic reticulosarcoma (Varadi, 1955). Cases of so-called Schilling type of monocytic leukaemia, in which the cell-type with its striking nucleoli is identical with the bizarre giant-cells of Hodgkin's sarcoma, may be considered the leukaemic form of Hodgkin's disease.

The Megakaryocytes

An increased number of megakaryocytes is the most frequent non-specific finding in the bone-marrow in Hodgkin's disease (Limarzi and Paul, 1949). This was also the case in both patients described. In addition, many of the megakaryocytes appeared to be pathological; they had voluminous folded nuclei, and in a few of them the peripheral zone of the cytoplasm was vacuolated. As a whole, platelet-forming cells were reduced in number and formation of platelets of unequal size, some very large ones, could be observed. The large blue well-demarcated nucleoli of the Reed–Sternberg cells allowed them to be clearly distinguished even from the pathological megakaryocytes.

It is by no means surprising, however, that, based on histological appearances, Hodgkin's disease was at one time thought to be a megakaryocytoma originating in the bone-marrow (Medlar, 1931). In fact, the impression gained from the bone-marrow cytology is that both the megakaryocytes (megakaryoblasts) and Dorothy Reed cells are developing from a common ancestor, a young reticulum cell, which is probably also the maternal cell of the granulocytes and monocytes. Both megakaryocytes and Reed–Sternberg cells can be seen amidst the cells of the white and red series, often in close proximity to each other. It is possible that the stimulus which causes the reticulum cells to develop into Reed–Sternberg cells also leads to increased megakaryocyte formation.

Macrocytic Anaemia

While anaemia, normochromic or hypochromic, is fairly common, especially in the advanced or generalized stages and in the acute form of Hodgkin's disease, macrocytic anaemia (meaning megaloblastic or mixed megalo-normoblastic erythropoiesis) occurs but rarely.

Megaloblasts are known to occur in malignant conditions affecting the erythron (erythraemic or erythroleukaemic myelosis), in pure leukaemias, and also in some cases of carcinomatosis of the bone-marrow (secondaries of prostatic carcinoma, unpublished personal observation). The vitamin B_{12} levels are normal or increased in these conditions, and it is thought that megaloblastic erythropoiesis is probably brought about by a lack of folic acid available in the erythron. Essential metabolites of nucleic-acid synthesis are perhaps used up by the pathological cells proliferating in the bone-marrow. Such an explanation could account for the partly megaloblastic erythropoiesis and for the giant metamyelocytes, and perhaps also for the defective platelet-formation in Case 1. Impairment of the

intestinal absorption through obstruction of the lacteals by mesenteric lymph nodes is also a possible contributory factor.

The explanation of the unusual haematological findings in Case 2 is not easy. In this case, in addition to macrocytosis and an increased reticulocyte count, there were numerous nucleated red cells, mainly with pyknotic nuclei, Howell–Jolly bodies, Pappenheimer bodies, and a number of Heinz bodies in the peripheral blood; the bone-marrow contained a smaller number of intermediate megaloblasts. Such findings occur sometimes in idiopathic steatorrhoea with atrophy of the spleen, which in turn is thought to be due to folic-acid deficiency (Nieweg and Arends, 1953). In this case the red-cell anomalies could have been due to the small and pathological spleen. In view of the patient's condition it was impossible to carry out tests confirming the presence of folic-acid deficiency.

Macrocytic anaemia with Howell–Jolly bodies and target cells was observed in a further case of febrile subacute Hodgkin's disease in which Reed–Sternberg cells were found in the bone-marrow and the spleen was small and atrophic.

Summary

Two cases of unusual presentation of Hodgkin's disease are reported: one appeared to be an acute abdomen, the other a possible case of steatorrhoea. No lymphadenopathy was demonstrable clinically or radiologically in either case and the spleen was if anything atrophic. In the first, a case of acute Hodgkin's disease, Reed–Sternberg cells were circulating in the blood, and their discovery in the blood smears led to the diagnosis. In the second case the diagnosis was reached from the sternal puncture carried out for the purpose of investigating a macrocytic anaemia.

Both patients had macrocytic anaemia, leucopenia, and thrombocytopenia. The haematological findings are discussed.

It is suggested that cases of pyrexia of unknown origin presenting with the above haematological picture be carefully scrutinized for the presence of sternal tenderness.

My thanks are due to Mr. F. Masina and Dr. J. Flint for permission to use their patients' case-notes. I am indebted to Dr. A. J. N. Warrack for post-mortem reports and access to material. I am grateful to Mr. C. Lambourne and Mr. R. Brookes for the photomicrographs.

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GLUCOSE TOLERANCE IN DYSFUNCTIONAL UTERINE BLEEDING AND IN CARCINOMA OF ENDOMETRIUM

A PRELIMINARY REPORT

BY

FRED BENJAMIN, M.B., Ch.B., M.R.C.O.G.

From the Department of Obstetrics and Gynaecology, University of Capetown

> "and now remains
> That we find out the cause of this effect,
> Or rather say, the cause of this defect,
> For this effect defective comes by cause."
> *Hamlet*, II, ii.

Investigations have been carried out in the gynaecology department of the Groote Schuur Hospital, Capetown, to determine the value of glucose-tolerance studies in cases of abnormal uterine bleeding of both benign and malignant origin. Studies were made of patients at the climacteric as well as in other age-groups. The results have been correlated in each case with the histological picture of the endometrium. Some interesting and significant findings have come to light, so that, though the work is still in a preparatory stage, it is considered that a preliminary report is warranted.

Several investigators have found that the incidence of diabetes mellitus and of impaired glucose tolerance is high in cases of carcinoma of the body of the uterus. Way (1954) reported that 29% of such patients had frank diabetes mellitus, and a further 43% showed a "pre-diabetic type of glucose-tolerance curve." Similar figures were found by Garnet (1958), and the findings of many other writers confirmed this abnormality, though most figures are not as striking as those of Way and of Garnet (Hertig and Sommers, 1940; Scheffey *et al.*, 1943; Moss, 1947; Palmer *et al.*, 1949; Louw, 1958; Noble and Attwood, 1958). Other workers, however, have failed to find a positive association between diabetes mellitus and carcinoma of the endometrium. Such reports include those of Marble (1934), Smith (1941), Jacobson (1948), and a recent one from Vander (1959); the latter found an incidence of 5.6% of diabetics, which is not higher than the incidence of diabetes in the general population of the same age and sex. The conflicting reports must in part, at least, be due to the lack of careful and adequate controls in the same age-groups; and few of these cases had been fully investigated by glucose-tolerance tests.

In view of the divergent reports, we first investigated patients with carcinoma of the body of the uterus, together with control subjects of the same age-groups. The work was then extended to embrace all cases with abnormal uterine bleeding, and especially those with benign glandular hyperplasia of the endometrium. So far the following groups have been studied by carrying out glucose-tolerance tests in each case and by correlating the results with the histological picture of the endometrium: (1) One hundred random women of 45 years of age and over who were not suffering from cancer of the endometrium or benign glandular hyperplasia. (2) Fifty cases of cancer of the endometrium. (3) Fifty patients who were proved by histological examination of the endometrium to have benign glandular hyperplasia.

On account of the recognized effect of age on glucose tolerance it was considered essential that the various groups should all be of the same ages.

Choice of Glucose-tolerance Test

Duncan (1952) states that the standard oral glucose-tolerance test is the most exacting test and, when properly assessed, the test of choice for determining, in doubtful cases, the presence or absence of diabetes mellitus. There is fairly general agreement about this in the literature, and the "standard one-dose (50 g.) oral glucose test" is probably the most satisfactory (Moyer and Womack, 1950; Jackson, 1952).

Accordingly, the following criteria formed the basis of the glucose-tolerance tests used in this investigation. (1) An unrestricted carbohydrate diet was allowed for several days before the test, the subjects not suffering from any infection or known hepatic disease. (2) The blood was taken half-hourly, beginning with a fasting specimen and continuing at least up to two hours. Fasting and hourly urine specimens were also taken. (3) Capillary blood was used. It is easier to obtain and does not miss the "lag type of curve" (Jackson, 1952). Capillary blood gives the same fasting reading as venous, but after glucose it is higher to a variable degree (up to 50 mg.). (4) The Hagedorn–Jensen method of estimating glucose was used.

Interpretation of Glucose-tolerance Tests

According to Duncan (1952), curves are considered indicative of diabetes if the fasting blood-sugar level exceeds 120 mg./100 ml., or if the two-hour value exceeds 130 mg./100 ml.; when the diabetes is of a mild nature the fasting blood-sugar may be normal, while the two-hour specimen is elevated. Jackson (1952) adduced evidence to show that values above 140 mg. at two hours and above 130 mg. at two and a half hours in the oral glucose-tolerance test were highly suggestive, if not pathognomonic, of pre-diabetes; in a larger series Jackson (1953) later confirmed this view. Similar tolerance curves and similar conclusions have since been reported by Kritzer (1952), Lund and Weese (1953), and Hoest and Lukens (1954). At first the *British Medical Journal* (1952) doubted the significance of such small aberrations in the glucose-tolerance curve, but later (1959) it stated that "in Britain particular attention is paid to the two-hour value, figures in excess of 100 mg. 'true' glucose per 100 ml. being regarded with suspicion." Lawrence (1947) was quoted in support of this statement.

Peak values above 180 mg./100 ml. are attributed to rapid intestinal absorption if the two-hour figure is near normal, but Joslin *et al.* (1952) do not recognize this "lag" type of curve as a separate entity and regard the height of the peak, rather than a two-hour value, as evidence of potential abnormality. Kritzer (1952) regarded a "positive" glucose-tolerance curve as one which showed a value of 200 mg./100 ml. or greater in the first hour, above 150 mg. in the second hour, and over 125 mg. in the third hour. Jackson (1957), having followed up 10 patients with "pre-diabetes," found that every patient yielded a more definite abnormality after at least three years. He stated that these results demonstrate clearly the significance of the minor aberrations in the glucose-tolerance test which he labelled "pre-diabetic."

In view of the conclusions drawn from all these studies, the following interpretation was placed on the glucose-tolerance results obtained in this investigation: (1) A normal glucose-tolerance curve: the normal curve was regarded as one where the fasting level is below 120 mg., the highest level is below 200 mg., and the two-hour level is below 120 mg. or at most 140 mg. (2) Unquestionable and possibly severe diabetes: a fasting level above 120 mg. and a two-hour level which is greatly elevated. (3) The third group is the most difficult to classify, and, as stated above, has been labelled "pre-diabetic" or "mildly diabetic." We have preferred to label this group "mildly impaired glucose tolerance." This group includes cases where the fasting level is below 120 mg. but the two-hour level is above 140 mg., or the peak, after half an hour, is above 200 mg.

Results

Using the glucose-tolerance test aforementioned on each subject investigated, and placing the same standard of interpretation on the results, the following groups were studied. In view of the known effect of age on glucose tolerance, this factor was constantly taken into consideration.

1. Women Who Acted as Control Subjects

One hundred consecutive women of 45 years of age and over who were not suffering from cancer of the endometrium or benign glandular hyperplasia were submitted to glucose-tolerance tests. These were in-patients and out-patients attending the Groote Schuur Hospital who were seen because of unrelated diseases, such as prolapse, fibroids, leucorrhoea, backache, cervical pathology, etc. In each case the endometrium was examined histologically, the specimen having been obtained by endometrial biopsy, curettage, or hysterectomy. If the endometrium was found to be hyperplastic or carcinomatous the case was excluded. All these women therefore had a normal endometrium—an endometrium which either was proliferative or secretory or was physiologically atrophic owing to the menopause.

This group was unselected in that it consisted of random consecutive gynaecological patients of 45 years of age and over. The majority of them, however, did have vaginal bleeding of varying degree and pelvic disease. It was therefore thought that this was the best type of control group for comparison with cases of cancer of the endometrium and benign glandular hyperplasia; for here we have a most comparable group of the same ages, and usually with pelvic disease as well—a condition similar to that which pertained in the other two groups.

The results are shown in the accompanying Table.

Glucose Tolerance in Control Subjects, in Cases of Cancer of the Endometrium, and in Patients with Benign Glandular Hyperplasia

Group Investigated	Normal Curves	Abnormal Curves		
		Diabetes	Mildly Impaired Glucose Tolerance	Total
100 control subjects	78%	13%	9%	22%
50 cases with cancer of endometrium ..	48%	28%	24%	52%
50 cases with benign glandular hyperplasia	16%	20%	64%	84%

2. Cases With Cancer of the Endometrium

Under the same conditions, 50 consecutive cases of cancer of the endometrium were investigated by glucose-tolerance tests. In order to compare this group with the

100 controls, only those who were 45 years of age and over were included. The results are summarized in the Table.

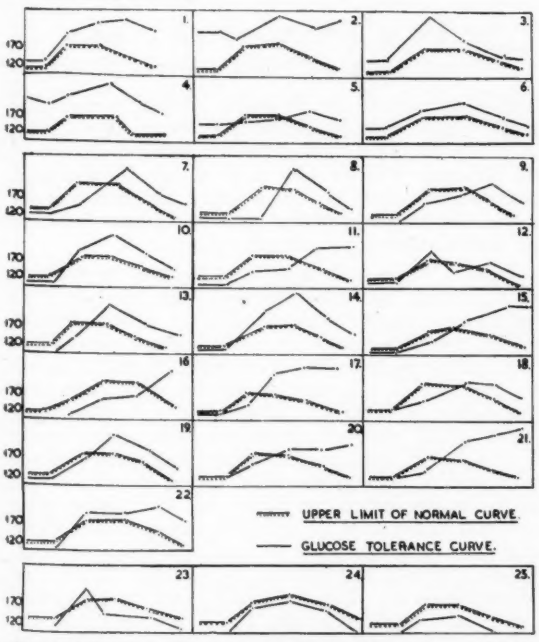
3. Cases With Benign Glandular Hyperplasia

So far 50 consecutive patients who were proved by histological examination of the endometrium to be suffering from benign glandular hyperplasia have been investigated along the same lines for glucose tolerance. Again the results are shown in the Table, and the curves of the first 25 consecutive cases are reproduced in the accompanying Figure.

The most striking findings were those obtained in the cases of benign glandular hyperplasia. In this group it was found that as many as 84% of the curves were abnormal. Most of the aberrations in the curves were not gross—22% were diabetic-type curves, and 62% showed less severely impaired glucose tolerance. This figure is considerably higher than that found in the control group (84% compared with 22%) and is statistically most significant; it is also appreciably higher than that obtained in cases of cancer of the endometrium (52%).

There is another reason why the findings in this group are most significant. The increasing incidence of diabetes with age is well known. All the control subjects, as well as the patients with cancer of the endometrium, were 45 years and over, and many were old women. But in this series with benign glandular hyperplasia the average age was low: 6 were under 35 years, 7 were between 35 and 44, 22 between 45 and 54, and 15 between 55 and 64 (the oldest patient was 63 years of age).

The number of cases is not large, but in view of the remarkable and statistically very significant findings this investigation is proceeding, and every case of abnormal endometrial bleeding that is encountered at this age is being investigated for glucose tolerance so as to obtain a much larger series.



Glucose-tolerance curves in 25 patients with benign glandular hyperplasia: Nos. 1–6, unquestionable diabetes; Nos. 7–22, impaired glucose tolerance; Nos. 23–25, normal glucose tolerance.

Discussion

This is preliminary report—a much larger number of cases are being and will be investigated. With the aid of careful controls the association of impaired glucose tolerance and cancer of the endometrium has been confirmed. The most striking result of the investigation, however, is even higher incidence (84%) of impaired glucose tolerance in patients with benign glandular hyperplasia. In spite of the relatively small number of cases, both these figures are found, on analysis, to be most significant statistically. The abnormality of carbohydrate metabolism was so frequent in cases with a hyperplastic endometrium and so relatively unusual where the endometrium is normal or atrophic that further studies are being carried out in a larger series. The glucose-tolerance test has become a more or less routine investigation in our department for such cases. An attempt is also being made to find the cause of this association by (*a*) endocrine assays of gonadotrophic hormones, (*b*) the administration of oestrogens, progesterone, and gonadotrophic hormones in suitable subjects, preceded and followed by glucose-tolerance tests.

The finding of this common factor (disturbance in glucose tolerance) lends more weight to the argument that benign glandular hyperplasia and endometrial cancer seem to be related. The association of the two conditions has often been reported (Novak and Yui, 1936; Strachan, 1936; Mazzola, 1938; Novak and Richardson, 1941; Purdie, 1945; Hertig and Sommers, 1949; Speert, 1949; Orrahood and Wyatt, 1953; Hunter *et al.*, 1954; Way, 1954; Barr and Charteris, 1955; Turnbull, 1956); and McBride (1955) reported the frequent association of "retrogressive hyperplasia or cystic atrophy" and carcinoma of the endometrium. Benign glandular hyperplasia (cystic and non-cystic) may be found in conjunction with frank cancer, and all gradations may occur, just as all degrees of atypical hyperplasia may precede the development of endometrial carcinoma (Novak and Novak, 1958).

What is the cause of the endometrial hyperplasia? And what is the factor that determines the development of carcinoma? Excessive or prolonged oestrogen activity has been suggested, because: (1) an increasing number of cases are being reported with a history of prolonged oestrogen therapy and later development of uterine cancer (Novak and Novak, 1958); (2) it is thought that there is a high incidence of endometrial carcinoma in feminizing mesenchymal ovarian tumours (Novak and Novak, 1958); and (3) endometrial hyperplasia is due to abnormal oestrogen activity (Brown *et al.*, 1959).

However, oestrogens alone do not explain the malignant development. (1) McBride (1955) showed that in post-menopausal women with endometrial carcinoma there was no evidence of continuing abnormal oestrogen activity. (2) Jones and Brewer (1941) reported on a group of young menstruating women whose endometria showed cancer in conjunction with a progestational endometrium—there is no question that this occurs, but as the exception to the usual picture of post-menopausal adenocarcinoma. (3) Cirrhotic subjects were thought to be more prone to develop endometrial cancer because of hepatic inability to detoxify oestrogen, but Brewer and Foley (1953) seemed to have disproved this fairly conclusively.

There appears, however, to be a factor common to both diseases— an aberration of carbohydrate metabolism. This finding may pave the way towards determining the missing factor which results in the development of malignancy. Such disturbances in carbohydrate metabolism may be the cause or result of benign glandular hyperplasia and may render the patient more liable to develop carcinoma, in a way similar to that whereby diabetes predisposes to certain infections. Underlying pituitary or adrenocortical dysfunction may be involved.

Summary

Studies in glucose tolerance have been extended to embrace all cases with abnormal uterine bleeding at the time of the climacteric, both benign and malignant. Similar investigations are proceeding in other age-groups. The results have been correlated with the histological appearances of the endometrium.

Conflicting reports have appeared in recent years with regard to the incidence of abnormal glucose tolerance in patients with carcinoma of the body of the uterus. Such cases were therefore investigated by glucose-tolerance tests and compared with control subjects of the same age-group (it is known that age has an important bearing on glucose tolerance). 52% of patients with cancer of the endometrium showed impaired glucose tolerance, compared with 22% in the control group. These figures, on analysis, are most significant statistically.

Patients with proved benign glandular hyperplasia were similarly investigated and compared with controls (both normal subjects and patients with uterine bleeding due to other causes). The incidence of abnormal glucose tolerance (84%) in cases of benign glandular hyperplasia was found to be striking and much higher than in the two control groups and higher than in cases of cancer of the endometrium. These figures are very significant statistically.

The possible significance of these findings is discussed.

It is submitted that further research along these lines is warranted. Such studies may throw more light on problems such as (*a*) the alleged association between benign glandular hyperplasia and cancer of the endometrium, and (*b*) the unknown factors that determine the onset of benign hyperplasia and the development of malignancy in some of these cases.

I am indebted to Professor J. T. Louw, professor of obstetrics and gynaecology, University of Capetown, at whose instigation this investigation is being carried out, for his invaluable advice and helpful criticism. Professor J. E. Kench and his department of chemical pathology, University of Capetown, carried out the biochemical investigation, and we gratefully acknowledge this work. Thanks are due to the Department of Pathology, University of Capetown, for the histological reports. Mrs. A. M. Strydam (M. Soc. Science, U.C.T.) carried out the statistical analyses, and I am grateful to her for doing this.

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HYDATID DISEASE IN NORTH WALES

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This paper presents certain epidemiological and surgical aspects of hydatid disease as seen during recent years in North Wales; it does not give a detailed account of the life-cycle of the parasite or pathology of the disease, since authors from countries where the disease is far commoner have contributed to a voluminous literature on these aspects of the subject.

In 1937 Professor Lambert Rogers drew the attention of the Welsh Board of Health to the relatively high incidence of hydatid disease in South Wales. Howell (1938), reporting the results of the inquiry, showed that 144 cases were admitted to hospitals in Wales during the period 1927–36. Most of these patients came from the industrial areas of Glamorgan and Monmouth. Wolfe (1943) reported another 34 cases treated in the Cardiff Royal Infirmary between 1926 and 1938. I was prompted to conduct this further survey of what appears to be a continuing prevalence of the disease after personal observation of several cases in South Wales and later in North Wales. Data concerning 44 cases, hitherto unpublished, treated in hospitals serving the North Wales area during January, 1948, to December, 1957, have been collected. It is probable that the number of patients treated is larger, since many hospital records only extend back over a five-year period.

Pathological Features

Hydatid disease is caused by cysts which are formed in various tissues by the developing larvae of the dog tapeworm, *Echinococcus granulosus*. The adult worm is 6 mm. long, and many hundreds are present in the upper small intestine of infected dogs (definitive host). About 500 ova are found in each proglottis. Food contaminated by dog faeces can be ingested by the intermediate host, which may be sheep, cattle, pig, camel, or man.

Ova ingested by man are acted upon by ferments in the stomach and upper part of the small intestine, where the external coat is digested. The freed embryo then burrows through the intestinal mucosa into a portal radicle to gain access to the liver, which is the commonest site of cyst formation; some embryos may filter through the liver sinusoids into the pulmonary capillaries and cysts develop in the lungs. Less commonly, cysts develop elsewhere—namely, kidney, spleen, pelvis, heart, bone, and central nervous system.

Hydatid cysts may reach the size of an orange or a baby's head, and are usually filled with a clear fluid. They are enclosed by an outer coat or adventitia, which is formed of fibrous tissue derived from the cellular reaction in the host tissue. The wall of the cyst proper is composed of an outer chitinous layer known as the laminated membrane; this layer is mainly responsible for the thickness of the cyst wall. The germinal layer, or endocyst, forms the lining membrane, and from it arise buds about the size of grains of sand, which grow into brood capsules containing a larger number of scolices. These are destined to grow into mature worms in the intestine of the dog. In man they are capable of developing into fully formed daughter cysts within the primary cyst, or elsewhere should rupture into serious cavities or the blood-stream occur. Insult to a simple or univesicular cyst by trauma, lack of nourishment, infection, or a foreign substance such as bile, may also result in the formation of daughter cysts. This tendency to multivesiculation appears to increase with age and is also more apparent in liver cysts. For instance, in 34 patients operated upon in the present series, 14 out of 19 liver cysts contained daughter cysts, whereas only 3 out of 10 pulmonary cysts were multivesicular. The contents of such cysts may be clear, caseous, or purulent.

Epidemiological Aspects

Occurrence.—Hippocrates first described the disease, which occurs throughout the world in sheep-rearing countries. It is relatively common in Australia, South America, Greece, Southern Italy, and in some countries of the Middle East; it is rare in the United States, but not uncommon in the native population of Canada. In Great Britain the incidence of the disease is low and, as was noted by Howell (1938), Wolfe (1943), and Barrett and Thomas (1952), largely confined to the Welsh area. Stringent public health measures have reduced the disease to a rarity in Scotland and the Shetlands.

Source and Reservoir of Infection.—Ova from dogs infected with the adult worm are ingested by sheep or man. The dog–sheep–dog cycle is responsible for perpetuating the infection in endemic areas.

As noted by Wolfe, inadequate supervision of the disposal of offal is the main factor responsible for transference of the disease. It would appear that approximately 4% of the sheep slaughtered in abattoirs of the Wrexham rural district area are infected with liver hydatid disease. The significance of cysts in some sheep livers is well understood by public abattoir staffs in North Wales, and, in general, offal is carefully disposed of at a central depot. In the industrial areas of Flintshire and Denbighshire, however, the multiplicity of small slaughterhouses makes strict supervision difficult. There are, for example, 13 slaughterhouses in one area with a population of 90,000; it is of interest to note that this number presents a considerable reduction on the pre-war figure of 57 slaughterhouses in the same area. Stray dogs undoubtedly gain access into substandard abattoirs where, because of the sheep infestation, the infectivity rate must be high.

Other practices, such as the occasional slaughtering on farms and the sale of offal as manure, are known to occur. Another old custom exists among shepherds in some areas of feeding dogs with dead sheep carcases. Obviously, therefore, there are abundant sources from which dogs are continually infected, with the consequent increased opportunity for human infection.

Veterinary surgeons in North Wales give a low incidence of infestation among domestic dogs, but no detailed investigation has, to my knowledge, been conducted on stray dogs. Three patients in the present series lived in a small mining village in the North Wales coalfield, which is noteworthy for its population of stray dogs.

As shown in Fig. 1, a high proportion of the cases in this series occurred in and around the industrial areas of Flintshire and Denbighshire and along the more heavily populated North Wales coast. A similar geographical distribution was noted in South Wales by Howell, and many causes have been postulated to account for it. The close proximity of grazing land to an industrial community with a large canine population must be a factor, especially as some of these areas have an increased number of stray and unlicensed dogs. Furthermore, domestic animals come into close contact with children and adults in the more crowded living conditions of an industrial community. Twenty-four patients in the present series were dog-owners. It should be remembered that, in addition to the excreta, the hair, paws, and muzzle of a dog may be infected. The increased fondling of dogs by children as well as their lower standard of hygiene, probably explains why hydatid disease is most often acquired during childhood. Others possible sources of human infection are green vegetables and spring water. Greenstuffs are occasionally contaminated with excreta, when infected dogs gain access into unfenced allotments and kitchen gardens.

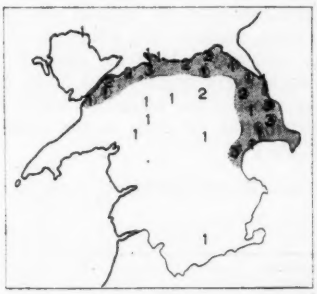

FIG. 1.—Geographical incidence (44 cases). Shading denotes more heavily populated areas.

Incidence of the Disease

The annual incidence between 1948 and 1957 appears to have remained fairly constant (Table I). The sex incidence shows a slight female preponderance, 23 being female and 21 male. In most other series the sexes are about equally affected. Wilson (1950) attributed a high incidence amongst Arab women to their extreme domesticity, which resulted in a greater liability to infection.

TABLE I.—*Annual Incidence*

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957
No. of cases	3	5	2	6	5	5	4	5	4	5

The ages of the patients at the time of diagnosis of the disease is shown in Table II; the maximum age incidence occurred in the fourth, fifth, and sixth decades.

TABLE II.—*Age Distribution at Time of Diagnosis*

Age	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–
No. of patients	1	3	3	5	9	7	12	4

The age of clinical presentation, however, is no criterion of the duration of the disease, which according to most authors is acquired during childhood or early adult life (Dew, 1928). The age of a cyst is indicated by such features as multivesiculation, calcification, sterility, and the onset of complications.

Surgical Manifestations

Dew (1930) has stressed that it is the onset of complications such as trauma, spontaneous rupture of cysts, and infection which determine the first clinical manifestations of hydatid disease. The disease may remain dormant for many years and be revealed only at necropsy. Hydatid cysts have been described in almost every organ in the body, but the liver and lungs are most often affected (Table III). The anatomical distribution of cysts in the present series is shown in Table IV.

TABLE III.—*Distribution of Cysts in Liver and Lung (Meltzer et al., 1956)*

	Liver	Lung
Lebanon	56%	30%
Greece	51%	30%
Turkey	51·7%	29%
Australia	76·6%	9·4%
S. America	70%	15%
Present series	59%	29%

TABLE IV.—*Anatomical Distribution of Cysts in 44 Patients*

Site of Disease	No. of Patients	Details
Liver	28	Right lobe, 23. Left lobe, 3. Both lobes, 2
Lung	13	Right lung: 4 lower lobe, 2 middle lobe, 1 upper lobe, 1 middle+lower lobe. Left lung: 3 lower lobe, 1 upper lobe. Right+left lungs: 1 (right middle lobe and left lower lobe)
Spleen	3	Whole spleen replaced by multivesicular cysts in 2 cases. Bipolar cysts in 1 case
Muscle	1	One cyst invaded abdominal wall in continuity with liver cyst
Peritoneal cavity	3	(1) Great omentum. (2) Behind bladder. (3) Multiple peritoneal

In four cases cysts were multiple: liver and bilateral lung cysts; liver and omentum; liver and multiple peritoneal; and liver and abdominal wall.

Liver Cysts

The latency of hepatic hydatid disease is well recognized. A long period usually elapses between infection during childhood or early adult life and the development of symptoms of the disease. Of 26 patients with liver cysts, 21 had complained of symptoms for less than six months. Three others had been aware of a symptomless abdominal swelling for 4, 8, and 15 years respectively. The frequency of various symptoms is enumerated in Table V, and is compared with two other series.

TABLE V.—*Comparison of Frequency of Symptoms in Liver Hydatid Disease*

Present Series		Kneebone (1937)		Wilson (1950)	
Pain and jaundice	8	Pain and jaundice	10	Pain and jaundice	2
Anaphylactic ..	1	Anaphylactic	7	Anaphylactic ..	0
Pain or discomfort	5	Pain or discomfort	7	Pain and discomfort	8
Swelling and cough	1	Swelling ..	7	Swelling ..	4
Swelling ..	3	Dyspepsia ..	3	Pain and cough	1
Swelling and pain	6	Swelling and pain	3	Swelling and pain	10
Weak feeling ..	2	Weak feeling	3	Weak feeling ..	0
Totals ..	26		40		25

It is evident that the commonest single symptom in all three groups of patients was abdominal swelling with or without pain. Characteristically, the pain simulated that of gall-bladder disease and was most often situated in the right hypochondrium; it was of a dull aching type, and was sometimes associated with pain in the right shoulder. Nausea and vomiting were rare symptoms except in the jaundiced patients. Two patients were admitted as acute abdominal emergencies following traumatic rupture of liver cysts. In one, a boy of 14 years, generalized abdominal pain occurred half an hour after a fall during a long-jump competition; an urticarial eruption also developed over the neck, chest, and abdomen. A pre-operative diagnosis of ruptured hydatid cyst was confirmed at operation. The other patient, a man of 48, complained of severe abdominal pain and vomiting following a crush injury between a tractor wheel and a motor truck. At laparotomy a ruptured hydatid cyst 3 in. (7.5 cm.) in diameter was found in the postero-inferior aspect of the right lobe of the liver, and the peritoneal cavity contained free fluid and many daughter cysts; anaphylactic symptoms did not occur.

Jaundice.—Rupture into or compression of the biliary system was thought to be the cause of jaundice in six patients. In addition, there were two cases of jaundice associated with infected hydatid cysts.

Intrabiliary Rupture.—This occurred in four patients, and daughter cysts were discharged along the common bile-duct. In three patients erosion of the right hepatic duct occurred and in the fourth an infected cyst of the left lobe of the liver had ruptured into the left hepatic duct. A noteworthy feature in one patient was a shrunken right lobe the substance of which had been entirely replaced by a multivesicular cyst which communicated with the right hepatic duct; the left lobe of the liver had undergone compensatory hypertrophy, and was at least the size of a normal right lobe.

Compression of Bile-ducts.—There were two cases in which large cysts of the right lobe of the liver had produced pressure deformity of the biliary system. One male patient, whose sister had already undergone treatment for hydatid disease five years previously, was found to have a large cyst in the quadrate lobe compressing the porta hepatis. In the other case jaundice subsided after draining a large cyst situated in the right lobe of the liver near the gall-bladder; the latter was distended, but no communication between the cyst and the bile-duct was demonstrated.

Suppuration.—In two patients jaundice was thought to be due to infective cholangitis. In one an intermittent pyrexia with jaundice continued for 10 days after draining a large infected cyst of the right lobe of the liver. In the

other patient jaundice and pyrexia occurred two months after drainage of a hydatid cyst situated high up under the diaphragm. The symptoms subsided after further drainage extrapleurally through the bed of the eleventh rib.

Pulmonary Cysts

There were 13 cases of pulmonary disease. The patients in the group were rather younger, six of them being under 30. With two exceptions the cysts were unilateral and solitary, the lower lobe of the right lung being most commonly affected (Table VI). In the

TABLE VI.—*Frequency of Symptoms in 13 Patients with Pulmonary Hydatid Disease*

Cough and haemoptysis	2
,, ,, pain	2
,, ,, dyspnoea	3
Chest pain	3
Cough and abdominal swelling	1
Asymptomatic (mass radiography)	2

experience of Barrett and Thomas (1952), multiple lung cysts are unusual in patients who have liver cysts as well, and are probably the result of simultaneous multiple infestation, thus enabling more than one embryo to penetrate the liver capillary barrier. Another possibility is that live elements are shed into the hepatic vein from a complicated liver cyst.

The commonest symptom was a paroxysmal cough, which was associated in two patients with slight haemoptysis. Two patients also gave a history of having coughed up hydatid "grapeskins." Chest pain, alone, occurred in three patients; in two of them it was the result of rib erosion by peripheral cysts.

The length of history varied for a few days or weeks to three months, the average duration being about one month. Cysts grow rapidly in the lung, since there is less limitation to expansion than in liver tissue. Symptoms therefore occur earlier than in liver disease.

Complications.—Intrabronchial rupture of pulmonary cysts occurred in two patients. Both gave a history of expectoration of fragments of hydatid cyst, and in each case a fistula between the cyst and a bronchus was demonstrated at operation. Intrapleural rupture occurred in two patients. In the first, a multivesicular cyst of the lower lobe of the left lung had partially ruptured into the pleural cavity, producing rib erosion and a localized bulging of the overlying chest wall. In the second patient, a large cyst 4 in. (10 cm.) in diameter, which was attached to all three lobes of the right lung, had eroded the posterior ends of the sixth, seventh, and eighth ribs, giving rise to new bone formation; many daughter cysts were evacuated from the cyst cavity.

FIG. 2.—A grossly enlarged spleen whose substance has been entirely replaced by a calcified multivesicular hydatid cyst. Daughter cysts are seen within one of the larger cavities. (Case 31.)

Splenic Cysts

There were three examples of primary cysts in the spleen, a higher incidence than the 3% quoted in the literature. All three patients complained of periodic pain in the left lower chest and abdomen. In one patient who also complained of an ulcer type dyspepsia and left shoulder pain there was a large abdominal mass visibly distending the left loin. At operation this was found to be grossly enlarged calcified spleen containing hundreds of daughter cysts (Fig. 2).

Secondary Cysts

Two patients in this series were admitted because of symptoms attributable to secondary cysts. One complained of a large fixed rounded swelling in the lower abdomen which had been present for about three months. At operation a large cystic mass was found arising out of the pelvis which was adherent to the posterior surface of the bladder; there was also a fibrosed remnant of a hydatid cyst in the liver. The second patient presented with symptoms of subacute intestinal obstruction. At operation multiple cysts were found in the liver, in the mesentery of the terminal ileum, and in the pelvis anterior to the sacrum.

Diagnosis and Treatment

In this series of 44 cases, 10 were not subjected to operative procedures for various reasons. In these 10 patients, however, the diagnosis of hydatid disease was substantiated by means of radiological, serological, and haematological investigations. Six patients in whom symptoms were minimal were not operated upon for reasons such as old age, obesity, congestive heart failure, and pneumoconiosis; three patients refused treatment, and in one case the diagnosis was made at necropsy. A correct pre-operative diagnosis was made in 21 of the 34 cases treated surgically, which suggests that clinicians in North Wales are not unaccustomed to hydatid disease.

Common diagnostic features of hepatic cysts were abdominal pain, palpable swelling, and jaundice. The swelling was smooth, lobulated, and usually firm rather

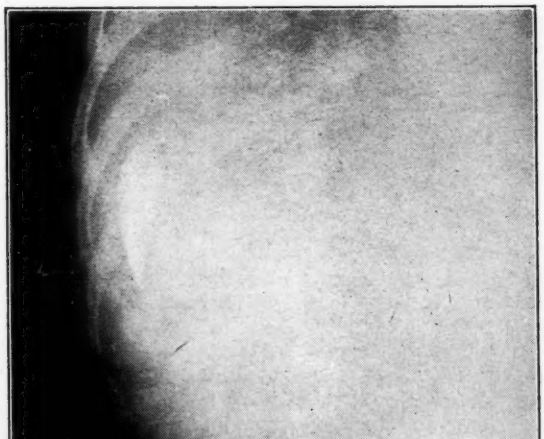

FIG. 3.—Antero-posterior radiograph showing the calcified shadow of a large hydatid cyst in the right lobe of the liver. This patient was 70 years of age, strongly positive to Casoni test. Symptoms were minimal and operation was not performed.

than cystic; in one case it was described as hard and nodular. Fluctuation with a so-called hydatid thrill was demonstrated on only one occasion. Probably the most important confirmatory finding was radiological evidence of calcification in the liver region (Fig. 3); this was present in 17 out of 28 cases of liver disease, and in all three patients with splenic cysts (Fig. 4). In lung cysts the *x*-ray appearance of a sharply demarcated opacity, often lobulated, suggested hydatid disease (Figs. 5 and 6). Calcification of the cyst wall occurred in only one case.

FIG. 4.—Radiograph showing relationship of a large calcified splenic cyst to the fundus of the stomach during a barium-meal examination. There was a second cyst in the lower pole of the spleen. (Case 30.)

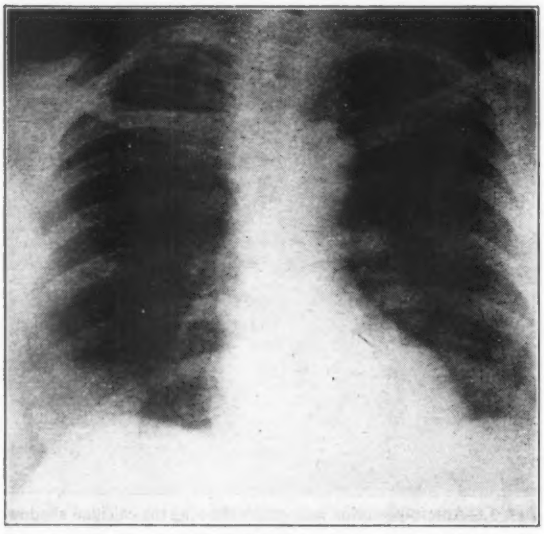

FIG. 5.—Antero-posterior radiograph showing a hydatid cyst in the lower lobe of the right lung (Case 20.)

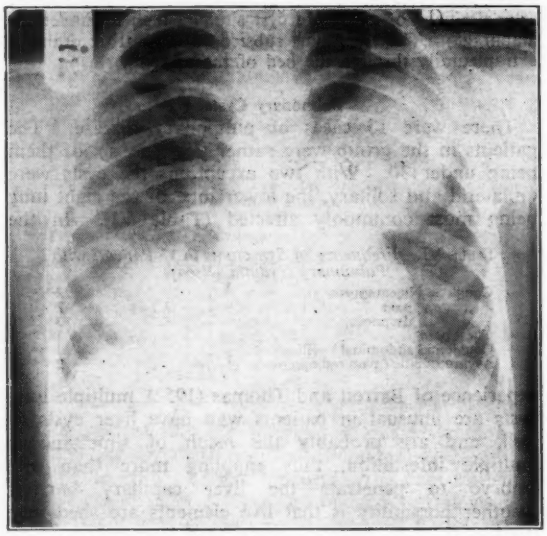

FIG. 6.—Antero-posterior radiograph of the chest of a child showing bilateral hydatid cysts of the lung. This film demonstrates the typical lobulated appearance of large pulmonary cysts. (Case 19.)

The Casoni intradermal test was of diagnostic value, though occasionally misleading. It was performed in 35 cases, the remaining nine patients being among those diagnosed at operation. As shown in Table VII, a

TABLE VII.—*Results of Casoni Intradermal Test* (35 *Patients*)

	No. of Tests	Positive	Negative
Liver cysts ..	22	21	1
Lung ,, ..	11	7	4
Spleen	2	2	0

negative Casoni reaction was noted in four cases of pulmonary hydatid disease. Dew (1928) attributed an occasional negative Casoni test to non-antigenic properties in the fluid injected or to desensitization following rupture of cysts or some other complication. In the present series, complement-fixation tests were rarely performed and no conclusion can therefore be drawn from the results.

The differential leucocyte count showed an eosinophilia varying between 6% and 24% in 16 cases (36% of whole series); this investigation therefore proved helpful in diagnosis.

The results of operative treatment in 34 patients are shown in Table VIII. In a series derived from a number of hospitals there was inevitably some slight variation in the details of surgical management, but, in the main, treatment was conducted along orthodox lines. All the pulmonary cases were treated at the Liverpool Thoracic Centre and two centres in North Wales.

Surgical Management

Liver Cysts

An anterior intraperitoneal approach through a right paramedian or Kocher incision was used in all cases of hepatic hydatid cysts. In two patients, when secondary procedures were necessary, a transthoracic extrapleural incision was made in the bed of the eleventh rib. Care was taken to protect the wound edges and the peritoneal cavity from contamination with hydatid fluid and daughter cysts.

TABLE VIII.—*Result of Treatment in 34 Cases*

Case No.	Age and Sex	Type of Cyst and Site	Treatment	Result
		Liver Cysts		
1	67 M	Multivesicular cyst R. lobe	Cholecystectomy. Removal of parasite. Drainage	Died from reactionary haemorrhage 24 hours after operation
2	60 M	Multivesicular cyst R. lobe infected	Drainage of abscess cavity	Died 48 hours after operation
3	72 M	Multivesicular cyst R. lobe. Rupture into common bile-duct	Removal of parasite. Drainage of cyst and common bile-duct	Died within 48 hours of operation
4	32 M	Univesicular cyst L. lobe	Excision of pedunculated cyst	Follow-up 2 years. No recurrence
5	26 M	Univesicular cyst R. lobe. Jaundice due to extrinsic pressure on common bile duct	Excision of parasite—formation of saline cyst	(1) Evacuation of blocd clot 24 hours post-op. (2) Infected cyst recurred 2 months later. Drainage. No recurrence in 4 years
6	35 F	Univesicular cyst R. lobe	,, ,,	Biliary fistula 2 days after operation. Drainage for 2 months. No recurrence in 6 years
7	48 M	Multivesicular cyst R. lobe. Traumatic rupture	Excision of parasite. Marsupialization of cyst. Peritoneal lavage	Follow-up 2 years: well
8	14 M	Univesicular cyst R. lobe. Traumatic rupture	Excision of parasite. Drainage of cyst. Peritoneal lavage	Follow-up 6 years: well
9	59 F	Multivesicular cyst L. lobe communicating with L. hepatic duct. Jaundice. Empyema of gall-bladder	Cholecystectomy. Excision of parasite. Drainage of cyst and common bile-duct	Follow-up 4½ years: well
10	46 F	Multivesicular cyst R. lobe. Jaundice	Incomplete excision of laminated membrane. Drainage of cyst and common bile-duct	Inadequate drainage post-op. necessitated drainage posteriorly through 11th rib bed. Biliary fistula for 3 months. Follow-up 4 years: well
11	64 F	Multivesicular cyst R. lobe. Jaundice	Cholecystectomy. Excision of parasite. Drainage of cyst and common bile-duct	Follow up: well
12	62 F	Multivesicular cyst R. lobe, adherent to duodenum	Excision of parasite. Drainage of cyst	Biliary fistula for 6 weeks. Follow-up 1 year: well
13	45 M	Multivesicular cyst R. lobe	Excision of parasite. Marsupialization of cyst	Untraced
14	40 M	,, ,,	Excision of parasite. Drainage	Follow-up 3 years: well
15	52 M	Multivesicular cyst R. lobe	,, ,,	Drainage for 7 weeks. Follow-up 2 years: well
16	54 M	Multivesicular cyst involving whole R. lobe	Excision of laminated membrane incomplete because of bleeding. Marsupialization of cyst	Biliary fistula necessitated further drainage through 11th rib bed 4 months later. 18 months later hydatid cyst excised from abdominal wound. Liver cyst full of daughter cysts. Further drainage. In poor health 6 months later
17	47 M	Multivesicular cyst R. lobe. Jaundice due to extrinsic pressure on bile-ducts	Excision of parasite. Marsupialization of cyst	Follow-up 2 years: well, but untraced for 2 years subsequently
18	61 F	Two multivesicular cysts in R. lobe. One cyst in L. lobe. One cyst invaded rectus abdominis muscle	Excision of parasite and part of abdominal wall. Drainage	Follow-up 3 years: well
19	4½ F	Univesicular cyst in liver. Bilateral lung cysts	Excision of bilateral lung cysts (monthly interval). Excision of parasite and drainage of liver cyst 2 months later	Follow up 14 months: well

TABLE VIII (*continued*)

Case No.	Age and Sex	Type of Cyst and Site	Treatment	Result
		Pulmonary Cysts		
20	44 F	Multivesicular cyst R. lower lobe. Communication with lower lobe bronchus	R. lower lobectomy	Follow-up 3 years: well
21	65 F	Univesicular cyst R. middle lobe	Excision of parasite and obliteration of cavity	Follow-up 7 years: well
22	39 F	Univesicular cyst R. lower lobe	,, ,,	Untraced
23	38 F	Multivesicular cyst R. middle lobe communication with bronchus	Excision of parasite layers and small block of chest wall comprising portions of ribs 6, 7, and 8	Follow-up 6 years: well
24	17 M	Univesicular cyst L. lower lobe	Excision of intact cyst after dissection outside adventitia. Cavity obliterated	,, ,,
25	51 M	Multivesicular cyst attached to all three lobes of R. lung—also to ribs 6 and 7. New bone formation	Excision of cyst outside adventitia and portions of ribs 6 and 7. Bleeding controlled by obliteration of dead space	Follow-up 18 months: well
26	64 F	Univesicular cyst R. lung — attached middle and lower lobe	Excision of parasite. Cavity closed	Hydatid cyst recurred in 118 months. Excision performed after. Subsequent follow-up 1 year: well
27	24 F	Univesicular cyst R. upper lobe	Excision of cyst parasite. Closure of cavity	Follow-up 9 years: well
28	12 M	Univesicular cyst L. upper lobe projecting into lingula	Excision of cyst. Closure of cavity	Follow-up 8 years: well
29	28 F	Univesicular cyst R. lower lobe projecting into interlobar fissure	Excision of intact parasite cyst. Closure of cavity	Follow-up 5 years: well
		Splenic Cysts		
30	44 M	Multivesicular cysts	Transthoracic splenectomy	Readmitted 6 weeks after discharge from hospital suffering from L. empyema. Recovery satisfactory after drainage. Follow-up 6 months: well
31	61 F	Large multivesicular cyst	Splenectomy	Died 10 days after operation
32	46 M	Multivesicular cyst	,,	Follow-up 4 years: well
		Secondary Cysts		
33	54 M	Hydatid cyst adherent to posterior aspect of bladder	Cyst wall excised after evacuating contents	Developed post-operative asthma—thought to be allergic response to antigens of hydatid disease. Follow-up 1 year: well
34	59 F	Multiple peritoneal cysts in small intestine, mesentery, and pelvis	One cyst removed. Other cysts fixed and immobile	Follow-up 4 years: well

One-stage operations were performed on all patients, one of three procedures being employed: (1) excision of the entire cyst including the adventitia, (2) excision of the parasitic membranes and conversion of the cavity into a saline cyst, or (3) excision of the parasitic membranes followed by open tube drainage or marsupialization of the residual cavity.

The first method can be accomplished only when a pedunculated cyst is present as severe haemorrhage usually precludes any attempt at dissection outside the adventitia. Such a cyst occurred once in this series, when a large pedunculated cyst of the left lobe of the liver was removed *in toto*. The second method of treatment was used in only two patients; in each the cysts were simple and univesicular. The parasite was

first destroyed by exposing the cyst contents to 2% formalin for 5 to 10 minutes. The parasitic layers were removed by separation along the plane of cleavage between the laminated membrane and the adventitia, and the residual cavity was converted into a saline cyst. The closed cyst was then sutured to the parietes deep to the incision so as to facilitate drainage in the event of a biliary fistula or infection. In fact, both these patients needed post-operative drainage. In one the blood clot was evacuated from the cyst cavity 24 hours after operation, and two months later infection of the cyst necessitated further drainage by marsupialization. In the other a biliary fistula occurred two days after operation; this healed after two months of open drainage. No conclusion can be drawn from the results of this method of treatment in two patients, but other writers (Oulié, 1934; Jenkins, 1949) have found that because of complications, such as haemorrhage and infection, primary closure even in apparently suitable cases is not always satisfactory.

In the remaining patients, the third method of treatment was adopted and on the whole was found to be safe and satisfactory. All cysts were formalized before evacuating the contents, and the residual cavity was either drained or marsupialized. Occasionally, in large multivesicular cysts, complete separation of the laminated membrane from the adventitia was impossible and fragments of the cyst lining were left *in situ*. Care was taken, therefore, to swab the whole interior wall of the residual cavity with 2% formalin.

Table VIII shows that 3 out of 19 patients with liver cysts died in the immediate post-operative period, all three being 60 years of age or over. One died from reactionary haemorrhage following cholecystectomy and drainage of a hydatid cyst; the second died after drainage of an infected cyst occupying the entire right lobe of the liver. The third patient, an obese man of 72 years, died 48 hours after draining a cyst of the right lobe of the liver which communicated with the common bile-duct.

In two cases of traumatic rupture of liver cysts, simple tube drainage was performed after routine treatment of the cyst cavity. So far as was possible the peritoneal cavity was cleared of hydatid fluid and daughter cysts by means of saline irrigation.

The common bile-duct was drained in three jaundiced patients in whom hepatic cysts had ruptured into the main bile-ducts. In one of these patients a persistent biliary fistula necessitated further drainage of the cyst through a posterior incision in the bed of the 11th rib.

Of the remaining eight patients with hydatid cysts of the liver, five were treated by simple drainage of the cavity and in three cases the cyst was marsupialized (Table VIII). In one patient (Case 18) part of the rectus abdominis muscle was excised in continuity with a large multivesicular cyst of the right lobe of the liver which had involved the abdominal wall. In the child with multiple lung and liver cysts (Case 19), successive operations were performed on both lungs and the liver over a period of three months. Each operation was well tolerated and the follow-up since operation has been satisfactory.

Though wound-healing occurred in an average period of three weeks, drainage from one infected cyst continued for as long as two months after operation. In two other patients temporary biliary fistula continued to drain for many weeks. All patients, with two exceptions, were followed up until July, 1958, recurrence being noted in one patient only (Case 16). The initial operation in this patient was unsatisfactory because bleeding precluded complete removal of the cyst membranes. A recurrence of jaundice necessitated further drainage of the liver cyst three months and again 21 months after the original operation.

Lung Cysts

Ten patients suffering from pulmonary hydatid cysts were treated in addition to the child with multiple lung and liver cysts. Lobectomy was performed once only; in this patient a communication existed between the cyst and the lower lobe bronchus. In two patients large cysts were excised by separating the adventitia or pericyst from the surrounding normal lung tissue and closing the segmental bronchus. In the remaining patients the cysts were removed after incising the adventitial layer. Occasionally extrusion of the intact cyst was accomplished, but usually rupture occurred at some stage of its removal. All bronchial fistulae in the residual cavity were closed and the dead space was either obliterated from within with catgut sutures or, if the cavity was large, the adventitia was simply closed. The residual space usually disappeared within a few weeks. When the lung was not adherent to the parietal pleura, care was taken to protect the open pleural cavity from contamination; in a few cases the mackintosh-bag technique described by Barrett and Thomas (1952) was used. In two patients a small block of the overlying chest wall which had been involved by a multivesicular cyst was removed. Post-operatively, under water seal, drainage of the pleural cavity was carried out in all cases. Because of the danger of entry into the bronchial tree, formalization of the cyst contents was not performed in this series of pulmonary cysts.

There was one recurrence (Case 26), a second cyst being excised from the lower lobe of the right lung 18 months after the first operation.

Splenic Cysts

Splenectomy was performed in all three patients with hydatid disease of the spleen. One patient died from paralytic ileus 10 days after operation. The spleen was found to be entirely occupied by a large multivesicular cyst, and was adherent to the stomach and duodenum. Of the other two patients, one remained well four years after splenectomy; in the other, the spleen, which contained two multivesicular cysts, was removed through a transthoracic incision. Two months after operation the patient was readmitted for drainage of a left basal empyema and has remained well since then.

Secondary Cysts

The treatment of secondary cysts is unsatisfactory, and both patients in this series were operated upon for relief of symptoms due to abdominal cysts. In one patient leakage of hydatid fluid into the peritoneal cavity occurred during separation of a large pelvic cyst, adherent to the bladder. Asthma occurred post-operatively and was thought to be an allergic response to the antigens of hydatid fluid; there was a marked degree of respiratory distress, which, however, responded satisfactorily to treatment. The other patient who was operated upon for subacute intestinal obstruction was found to have multiple fixed peritoneal cysts; one cyst only was removed for diagnostic purposes.

Prognosis

The prognosis in hydatid disease depends upon the presence or otherwise of complicated cysts. In this series of 34 patients treated surgically there were four deaths, an operative mortality of 11.8%. Three patients died from complications of the cyst and one from post-operative haemorrhage. All four patients were 60 years of age or over; there were no deaths at any age in patients with uncomplicated cysts.

The lower mortality and morbidity rates in the post-war era can largely be attributed to the use of antibiotics, both prophylactically and in the control of infection. Antibiotic therapy has certainly lessened the incidence and spread of infection. In the present series there were no instances of subphrenic suppuration, and post-operative chest complications were rare.

Furthermore, improved methods of anaesthesia have made possible a more complete surgical ablation of the disease. This is reflected in the low recurrence rate; so far in this series, cysts have recurred in only two patients.

Summary

A survey is made of 44 cases of hydatid disease treated in hospitals serving North Wales from 1948 to 1957.

Some epidemiological aspects of the disease are described. Attention is drawn to the difficulty of effective supervision of slaughterhouses in some areas.

Hydatid disease is an eradicable disease with a significant mortality rate. Though the incidence in Wales is low compared with many other sheep-rearing countries, it remains higher than in other parts of the United Kingdom.

The clinical features of the various types of cysts seen in this series are discussed. The latency of the disease, particularly in the liver, is stressed. Symptoms are usually the result of complications occurring in the cyst.

The diagnostic criteria are described. Radiological evidence of calcification was observed in a high proportion of liver and splenic cysts.

Details of surgical treatment varied according to the site of the cyst and the complications present, but all methods aimed at a complete removal of the parasitic membranes.

The operative mortality was confined to patients aged 60 or more suffering from complicated multivesicular cysts.

I thank all the consultant surgeons who allowed me to review their cases. I am indebted to Mr. Ivor Lewis for several *x*-ray plates, and to Mr. Bartholomew and Miss Wadsworth, of the Institute of Urology, London, for photograph and drawings.

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INFLUENCE OF THYROXINE ON THE INCIDENCE OF HARELIP IN THE "STRONG A" LINE OF MICE

BY

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The incidence of congenital malformations produced in the laboratory animal both by hypervitaminosis-A and by *x*-irradiation may be modified by the use of hormones and hormone antagonists. Cortisone augments the teratogenic activity of both vitamin A (Millen and Woollam, 1957; Woollam and Millen, 1957), and *x*-radiation (Woollam, Millen, and Fozzard, 1959). Methylthiouracil also increases the teratogenic action of vitamin A (Woollam and Millen, 1958), whereas insulin (Millen and Woollam, 1958a), thyroxine (Millen and Woollam, 1959), and vitamins of the B group (Millen and Woollam, 1958b) afford protection against this activity of the vitamin. Attempts have also been made to elucidate whether the modifying action of vitamins, hormones, and hormone antagonists extended to those deformities which were genetically determined rather than produced by a teratogenic agent. This paper records the findings of one such series of experiments.

Present Experiments

Methods.—Female mice of the Strong A line were used in these experiments. Only brother–sister matings were employed throughout, and the onset of pregnancy was determined by the presence of a vaginal plug, the day on which the plug was detected being taken as Day 1 of the pregnancy. The animals were divided into two groups. Animals in group 1, the control group, received no treatment. Each animal in group 2 received 0.1 mg. of thyroxine by subcutaneous injection on both Day 11 and Day 12 of pregnancy. On Day 18 all the animals were killed. The young were removed from the uterus and examined for the presence of harelip.

Findings.—The incidence of harelip in the two groups is shown in the Table. Statistical analysis of the results of these experiments indicates a highly significant difference in incidence between the two groups, and justifies the conclusion that the administration of thyroxine to the pregnant dam has the effect of reducing the incidence of harelip in the Strong A line of mice.

Incidence of Harelip

Group	A No. of Litters	B No. of Litters with at Least One Foetus with Harelip	C Total No. of Young	D Total No. of Young with Harelip
1. Control	28	17	207	25 (12·1%)
2. Thyroxine 0·1 mg. on days 11 and 12 of pregnancy	19	5	138	6 (4·4%)

Statistical analysis:
Comparison based on columns C and D, $\chi^2 = 6{\cdot}05$ on 1 d.f.
,, ,, ,, ,, A ,, B, $\chi^2 = 5{\cdot}36$,,

Discussion

The genetics of harelip in the mouse have not as yet been satisfactorily elucidated. The most significant theoretical concept is that of Grüneberg (1943), who suggested that the Strong A line may be homozygous for a harelip gene, or more probably a small number of cumulative genes, with a series of minus modifiers exerting a protective action and, in most cases, cancelling out the effect of the gene or genes. That such modification might be due to environmental factors was the opinion of Reed (1936), who attributed the variation in incidence of harelip in the house mouse to the interplay of environmental and genetic effects, the environmental factors being five times as influential as the genetic.

The influence of maternal factors on the incidence of harelip in mice was shown by Steiniger (1939), who was able to *increase* the incidence of harelip in a susceptible strain by the administration to the dam of "preloban," a preparation which contains all the known anterior pituitary hormones, during the first half of pregnancy. Since anterior pituitary hormones increase, and thyroxine decreases, the influence of the gene or genes for harelip, it would seem that the hormonal balance of the mother is of considerable significance for the proper development of the lip in the foetal mouse. Unfortunately the part played by the maternal organs and placenta in the endocrine control of the foetus is as yet only imperfectly understood, but such information as is available suggests that, at the critical period of development of the lip, the foetal mouse is entirely dependent for thyroxine and insulin upon the endocrine system of the mother. Therefore, though it is not possible to detect the precise mechanism by which thyroxine exerts its protective action against the deleterious effects of the harelip gene or genes, it is clear that, if it acts by influencing the production of hormones by the thyroid gland or islets of Langerhans, it must do so by influencing these structures in the mother rather than in the foetus. If, on the other hand, the activity of the thyroxine is directly on the developing foetal tissues, it may be that it exerts its protective effects by an influence on the carbohydrate metabolism of the cell.

It is interesting to note that Eggenberger (1928) observed that many congenital malformations are more common in cretins than in the population at large. There are a number of congenital conditions, of which cretinism is but one example, in the production of which the interplay of genetic and environmental factors appears to be involved. It may be that in the elucidation of the aetiology of these conditions, which can be explained only partially on a genetic basis, attention should be paid to what is perhaps the most significant environmental factor to which the developing foetus is exposed, the influence of the endocrine system of its mother.

Summary

A significant decrease in the incidence of harelip in the Strong A line of mice was produced by administering 0.1 mg. of thyroxine to the dam on the 11th and 12th day of pregnancy.

This work was supported by a grant from the Medical Research Council. We are indebted to Professor J. D. Boyd for his advice and encouragement in the preparation of this paper, and to Mr. D. V. Lindley, of the Statistical Laboratory, Cambridge, for the statistical analysis.

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THE POLYMASK AS A MEANS OF ADMINISTERING OXYGEN

BY

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The polymask is often used to administer oxygen to patients, and in the General Infirmary at Leeds (1,000 beds) 2,160 polymasks were used last year on medical and surgical cases.

The polymask is a bag made of soft "polythene" sheeting, with an inner smaller bag at the top. Oxygen is fed into the larger bag through a narrow plastic tube, then into the smaller compartment through two holes, each ½ in. (12.5 mm.) in diameter. Two smaller holes, piercing both the inner compartment and the outer bag and situated near the patient's nostrils, are designed for the emergence of carbon dioxide. A bare wire runs round half the top of the bag and is moulded over the patient's nose and cheeks; the portion of the bag beneath the chin is quite loose and no attempt at close fitting is made. Thread elastic passes round the head and fixes the bag in position.

The polymask has been tested for the accumulation of carbon dioxide, and this was found not to occur to any significant degree (Ogilvie, 1956). However, its efficacy as a means of delivering oxygen to the wearer was in doubt after observing it in use. It seemed that one or both of two occurrences could be responsible for the patient's inspiring room air through the holes designed for expiration even when the oxygen was entering the mask at 8 litres a minute.

Firstly, owing to the lightness and softness of a bag which is of relatively large dimensions (8 by 8 in.—20 by 20 cm.) and the presence at its base of a tube of extremely narrow bore to which is attached, through a tapered connexion, a much heavier connecting tube from the oxygen cylinder, kinking of the bag above the entry tube can occur, with the production of deep creases in it (Fig. 1). This usually causes the second occurrence, which is that the two holes into the inner compartment either collapse on themselves or get so displaced that they come to lie beneath the chin, with

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FIG. 1.—The polymask in the "usual" position. The patient has moved the head about, with the following results: (1) The bag above the entry tube is kinked and deep creases have appeared in it; (2) the two holes for the oxygen inflow to the smaller bag have slipped beneath the chin and oxygen is flowing down the neck; (3) the bag can be seen to be indrawn as the patient inspires room air through the expiratory holes; and (4) though the oxygen flow was 8 l./min., the gas available inside the mask contained only 25% oxygen on this occasion.

FIG. 2.—The patient, wearing the polymask and sitting upright, has turned the head and produced the same state of affairs as in Fig. 1.

the consequence that the oxygen which passes through them flows out of the lower part of the bag, and escapes uselessly down the neck.

This kinking and creasing of the bag can very easily occur with a restless patient, still only semi-conscious after an anaesthetic, but it can also occur in a patient who is sitting upright and moving the head a little (Fig. 2).

The present investigation was therefore undertaken, and was concerned with measuring the amount of oxygen made available to the person wearing the polymask.

The Method

The mask was carefully moulded to the face and the wearer was first of all arranged in the "ideal" position, which entailed lying still on the back, with the tube connecting the bag to the oxygen cylinder pinned to the sheet with a safety-pin (Fig. 3). In this way the weight of the tube was prevented from pulling on the polymask, and as the head was kept still no creases appeared in the bag, which became filled with oxygen. The oxygen was run in at 2, 4, 6, and 8 litres a minute.

Then the mask was again carefully applied, but the connecting tube was not pinned to the sheet and the wearer moved the head from side to side for five minutes. This is referred to in the results as the "usual" position. The oxygen was administered at the same rates of flow as in the ideal position.

Two patients in the ward were also tested. The nursing staff had previously been requested to ascertain that the inflow of oxygen was as near as possible to the "ideal."

Tests were performed on the wearer in the ideal position and in the usual position at each of the different rates of flow enumerated above—that is, at 2, 4, 6, and 8 l./min.

The tests consisted of drawing into an evacuated tonometer the gas inside the mask at the region of the top lip, the end of the tonometer being introduced

FIG. 3.—Polymask in the "ideal" position, which requires constant supervision. The patient is still, and the weight of the connecting tube is taken from the thin bag by being fixed to the sheet. The oxygen flow is 8 l./min. and the inspired air available to the patient contains nearly 80% oxygen.

through one of the expiratory holes. All gas samples were taken on inspiration and were analysed on a Haldane gas analyser.

Results

In none of the samples analysed was the carbon-dioxide content greater than 1%. The results obtained for oxygen percentages in the ideal and the usual positions are given in Table I. The results obtained from the patients are shown in Table II. It will be remembered that room air contains 20% oxygen.

TABLE I

Rate of Flow from O_2 Cylinder	Percentage of Oxygen Available to Patient	
	Ideal Position	Usual Position
8 l. min.	77	33
6 ,, ...	70·5	21·6
4 ,, ...	44	21·4
2 ,, ...	46	22

TABLE II

	O_2 Flow	O_2 Percentage in Mask
Patient No. 1	7 l./min.	25
,, ,, 2	8 ,,	30

Discussion

Under ideal conditions the polymask delivers to the region of the patient's top lip an atmosphere containing 77% oxygen when the flow from the cylinder is 8 litres a minute, while at 2 litres a minute the atmosphere is still enriched to 46% oxygen. These ideal conditions require that the weight of the delivery tube is removed from the polymask, that this remains well ventilated, and that the patient keeps still. If any of these criteria are not carried out, kinking and creasing of the bag occurs and the holes for the passage of oxygen into the inner compartment slip beneath the chin and the oxygen is directed down the neck. The patient then inspires room air through the holes designed for expiration.

At 8 litres a minute and in the usual position, it is still possible for a patient to have an oxygen-rich inspirate (33%–30%), and this is probably due to the force of the oxygen flow. It is, however, extremely wasteful, and this is an important consideration, especially in domiciliary practice. Even at 8 litres a minute, however, it is possible to inspire room air if the two holes into the inner compartment have slipped beneath the chin. As these are invisible from the outside it is impossible, even with supervision, to ensure against this.

Conclusion

The delivery of oxygen to a patient through the polymask is unpredictable whatever the rate of flow of oxygen from the cylinder, but the higher the rate of flow the more chance there is of an oxygen-rich atmosphere being available to the patient.

From the evidence of gas analyses, the mask is inefficient and the wearer is more likely to breathe room air than an oxygen-rich atmosphere.

There is no undue accumulation of carbon dioxide.

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Medical Memoranda

An Overdose of "Plaquenil"

In view of the widespread use of the hydroxy derivative of the antimalarial compound chloroquine (plaquenil) in rheumatoid arthritis and other "collagen diseases," the following history may be of interest.

CASE REPORT

At 9.30 p.m. on July 4, 1959, a keeper roused a sleeping man from a park bench. The man spoke in an odd way and had vomited and defaecated in his clothing. The police arrived and elicited an admission that he had swallowed 36 tablets, and he was admitted to St. David's Hospital, Cardiff, at 10.30 p.m. He was conscious but drowsy, he readily co-operated in a slow way, his speech was slurred, and his extremities were cold and clammy. Respiration was irregular, deep or sighing, and 14 a minute. There were no physical signs of abnormality in the lungs. The pulse was regular at 68 a minute but of poor volume, and the blood-pressure was dangerously low (40/? mm. Hg). The pupils were dilated and reacted sluggishly to light; the other reflexes were present.

In view of the peripheral circulatory failure, an intravenous injection of amphetamine sulphate (10 mg.) was given at once. Blood samples were withdrawn a few minutes later, and the plasma level of plaquenil proved to be 6.1 mg./l. The response to stimulation was dramatic, and with the aid of 1.5 l. of glucose–saline to correct slight dehydration and alkalosis (Na 137, K 22, Cl 94, bicarbonate 32 mEq/l. on admission) and inhalation of oxygen for one hour, he recovered quickly. At that time *x*-ray films showed clear lung fields and a normal cardiac outline. The E.C.G. showed a sinus tachycardia at 112 a minute, prolongation of the P–R interval, and ST depression with left axis deviation. Apart from initial oliguria with a trace of albumin, there was no renal damage. The output was restored quickly and 1.8 l. of urine was passed in 24 hours—a deficit of 1.5 l. on the intake. An initial rise in temperature to 100° F. (37.8° C.) was countered with penicillin, 500,000 units, and streptomycin, 0.5 g., twice a day for two days, and vanished shortly after the infusion ceased. Two days later the plasma level of plaquenil was 2.7 mg./l.; Hb, 12.9 g./100 ml.; W.B.C., 7,800; E.C.G., normal; pulse rate, 74; blood-pressure, 120/80; respirations 20 a minute. The liver and renal function tests were normal, there was no evidence of corneal or other ophthalmic abnormality, and he was discharged. The crisis was a result of guilty feelings consequent upon ruinous gambling.

I am indebted to Dr. J. R. Gwilt, of Winthrop Laboratories Ltd., for analysis of plaquenil in the plasma samples, which were stored at −8° C. for 24 days.

J. D. P. GRAHAM, M.D.,
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"Smuggling across the Malacca Strait from Sumatra to Malaya is one of the oldest activities in this part of the world. . . . Cigarettes and drugs are among the most popular items for the smugglers, but the Federation's Customs officers have recently come across an unexpected item in the traffic—lepers. . . . Lepers are unable to get efficient treatment in Sumatra, but there are now 50 Indonesian patients, all of whom have entered Malaya illegally, in the Sungei Buloh Leper Settlement near Kuala Lumpur, and the cost of their treatment adds considerably to the worries of this excellent institution. There seems to be no doubt that a well-organized band of smugglers brings them across the Strait to a small island near Port Swettenham and then smuggles them ashore." (*Manchester Guardian*, April 4.)

Reviews

HOW MANY HOSPITAL BEDS?

The Demand for Medical Care. By Gordon Forsyth, B.A., and Robert F. L. Logan, M.D., M.R.C.P. (Pp. 149; illustrated. 7s. 6d.) Published for the Nuffield Provincial Hospitals Trust by the Oxford University Press. 1960.

This report describes one of a series of investigations carried out by the Nuffield Provincial Hospitals Trust into the needs of various communities for hospital beds. The area chosen for the study was Barrow-in-Furness, where for geographical and social reasons the population was readily definable, and the method of study was developed from the Trust's earlier work in Barrow and Northampton. The aim was to determine the optimum number of acute hospital beds required by the community at the present time, with an estimate of its possible requirement 20 years hence.

A detailed and painstaking analysis was made of all admissions to all the hospitals serving the area during the year 1957, and it was soon found that the pattern of admissions was influenced by many factors not all of which could be readily evaluated; social custom, medical tradition, professional habits both inside and outside the hospitals all played their part in raising the figure of occupied beds above the 2 per 1,000 of population postulated on purely clinical grounds. The hospitals were found to be meeting human needs as well as purely clinical ones to an extent which had not been fully appreciated.

The finding that approximately a quarter of the patients admitted to medical wards received treatment or investigation which could have been given at home or in the out-patient department may well be a measure of deficiency in the social environment in the home rather than of lack of competence or unwillingness on the part of the general practitioner. Practitioners treat at home, where circumstances permit, many patients whose clinical conditions would justify hospital admission. Where home nursing facilities are inadequate—and the doctor in the house must be the arbiter—the admission of a patient to hospital for medical treatment, on social grounds, must surely be justifiable, and hospitals must accept this as part of their responsibility towards the community which they serve. Thus the adjusted ratio of 2.3 beds per 1,000 population is practical and realistic at least until home care can be much improved.

While this differential analysis by specialties of the hospital work of one year in Barrow will remain a source of factual material for future planning, the main value of the study is its clear demonstration that the demand for medical care cannot be measured by assessing the demand for hospital beds. In future studies the few cross-bearings taken on general practice must be multiplied many times over. No useful conclusions can be drawn from attempts to relate hospital referrals to size of practice lists, direct use of diagnostic facilities, and prescribing costs without simultaneous consideration of many other factors, including the many unmeasured aspects relating to the general practitioners themselves. This investigation should be followed by others in which equally strict examination will be made of "the variation in range and depth of work of the general practitioners and the relevant aspects of their social and professional circumstances as they affect their usage of, and need for, hospital facilities."

R. J. F. H. PINSENT.

COLONIC DISEASE AND SURGERY

Diseases of the Colon and Anorectum. 2 Volumes. Edited by Robert Turell, M.D. (Pp. 1,238+xxii; illustrated. £12 5s.) Philadelphia and London: W. B. Saunders Company. 1959.

It would be difficult to praise too highly this magnificent work which in two volumes provides an encyclopaedic amount of detail on most aspects of colonic disease and surgery. Edited by a distinguished American proctologist, it combines the work of 82 authors from both sides of the Atlantic, and both the experienced and junior surgeon can refer to this work with much to gain. They can weigh the pros and cons of conservative surgery in the treatment of rectal carcinoma, evaluate them against the opinions of those advocating the classical, more extensive, modified Miles's operation, and, combined with their own experience, form as accurate an opinion as they could gain by hours of study in a library. To some the operations described may be new, but the detail of the description and the clarity of the numerous illustrations would enable them to be undertaken with confidence.

The challenging subject of ulcerative colitis is reviewed in this book by both physician and surgeon—a lead that should be followed in practice in the day-to-day clinical care of the patient. It is perhaps in this sector of the book alone that conservatism of opinion has had complete sway. There is a trend in the surgery of ulcerative colitis to-day which seeks to escape from the inevitability of panproctocolectomy and a permanent ileostomy, but this trend receives the scantiest of recognition. Succeeding editions, and there will be many, could with advantage include a chapter on this aspect of surgical treatment so that, as in other sections of the book, opinions are presented from which the reader may make his final choice. The more minor diseases of the rectum are considered, as is so right, with as much detail as are the major conditions, and even when perusing the paper on the subject of pruritus ani the proctologist may find there causes for the condition which he had not previously considered and additional treatments that may help him in the care of these patients.

This is a first-class work. Bookshelves may be overburdened, but two books must certainly be discarded to find a place for these two volumes in the library of any surgeon or physician interested in proctology.

STANLEY AYLETT.

AN ORIGINAL ANATOMICAL GUIDE

Anatomy of the Human Body. By R. D. Lockhart, M.D., Ch.M., F.R.S.E., G. F. Hamilton, B.Sc., M.B., Ch.B., and F. W. Fyfe, M.A., M.B., Ch.B. (Pp 697+ix; illustrated. £5 5s.) London: Faber and Faber. 1959.

While insisting that the royal road to a knowledge of anatomy is dissection of the dead and examination of the living subject, the authors of this book have attempted "to lighten the burden of the student" by new methods of description and illustration. They have certainly achieved their object, for the originality of their presentation of a hackneyed subject is stimulating, and the book is only about half the usual size of standard textbooks of anatomy. The beautifully illus-

trated descriptions of the peripheral nerves are almost as vivid and informative as a real dissection; the pictures of muscles in action recall the excellent drawings of Vesalius; the elaborate diagrams of the central nervous system should satisfy and gratify the budding neurologist; the remarkably compact series of radiographs of the skeleton at various ages will please the surgeon; and throughout the book the clinical application of anatomical facts will prepare the student for his practical course.

Anatomy deals with plain and often dull facts, but whenever possible the writers of this book have enlightened the text with simile and metaphor. Take this description of the skin, for example:

> "There is no magician's mantle to compare with the skin in its diverse roles of waterproof, overcoat, sunshade, suit of armour, and refrigerator, sensitive to the touch of a feather, to temperature, and pain, withstanding the wear and tear of threescore years and ten, and executing its own running repairs."

I rather envy the student who has this anatomical guide to help him.

ZACHARY COPE.

FURTHER AMERICAN SEX RESEARCH

Pregnancy, Birth, and Abortion. By Paul H. Gebhard, Wardell B. Pomeroy, Clyde E. Martin, and Cornelia V. Christenson. (Pp. 282+xiii. 30s.) London: William Heinemann (Medical Books) Ltd. 1959.

This book is dedicated to the late Dr. Alfred C. Kinsey, the founder of the Institute for Sex Research at Indiana University and the leading spirit in the production of the two previous reports on male and female sex behaviour which are so often called after his name. The latest publication from the Institute deals with the fruits of such behaviour and is based on a further analysis of the original case histories of 5,293 white women, together with those of 572 negresses, and of 1,209 white and coloured women serving prison sentences. The incidence of pre-marital, marital, and post-marital pregnancies, abortions, and births is related to age, education, religion, and other factors. As might be expected from the earlier reports, the findings are as startling as they are informative. Among the non-prisoner whites, for example, there was a 10% incidence of pre-marital pregnancy. Eighty-nine per cent. of these pregnancies ended by induced abortion and 5% ended by spontaneous abortion or stillbirth; only 6% resulted in a live child. Of white women who had separated from their husbands or who had become widowed, 75% indulged in coitus and one-fifth became pregnant. Approximately 80% of these pregnancies terminated in criminal abortion.

Perhaps the most valuable observations for the gynaecologist practising in this country are those concerned with married white women. Here we find that the incidence of spontaneous abortion was one in 10 pregnancies during early reproductive life but one in five pregnancies at a later age. Twenty-five per cent. of women experienced at least one spontaneous abortion during marriage; the figure for induced abortion was approximately the same. The experience of negresses is largely governed by customs dating back to the days of slavery. These women regard coitus and pregnancy as inevitable, and one-fifth of all those without higher education had had a pre-marital pregnancy by the time they were 15 years of age. The histories of inmates of prisons were, not surprisingly, characterized by sexual promiscuity, illicit abortions, and illegitimate births. The occupants of one prison boasted that they had only one virgin among them and that was because she was exclusively homosexual.

The final chapters are devoted to the medical and legal aspects of induced abortion, both in the United States of America and in other countries. Many points of interest arise from the detailed consideration of the situation in the U.S.A. There, for example, the cost of criminal abortion appears to vary directly with the age of the patient but is least for members of hospital staffs. The evidence produced to show that induced abortion is relatively free from the physical and psychological hazards which most gynaecologists believe to be present is not very convincing.

The authors freely admit that their work was hampered by two factors. First, the samples studied were not fully representative of the general community of the U.S.A., and, second, the original inquiries did not have reproductive experience primarily in view, so the data are not as complete as they would have liked. Be this as it may, the wealth of information and a large bibliography make this a valuable reference book. It is, nevertheless, one to be used with caution, because, in the words of the authors, "our only fear is that some readers will, in spite of reiterated warnings and qualifications, misinterpret what we present."

T. N. A. JEFFCOATE.

GERMAN TEXTBOOK OF PAEDIATRIC SURGERY

Lehrbuch der Chirurgie und Orthopädie des Kindesalters. Edited by A. Oberniedermayer. 3 volumes. (Pp. 375; 1087; 266; illustrated. Vol. I–III, DM. 620; I and II, DM. 535; III, DM. 85.) Berlin: Springer Verlag. 1959.

This is the second large textbook on paediatric surgery which has appeared in the German language since the war. It differs from Grob's well-known work in that it is the product not of one surgeon's experience but of 12. Only four of these surgeons are exclusively engaged in the practice of paediatric surgery; the others are general surgeons specializing in urology, orthopaedics, plastic surgery, neurosurgery, etc. This division of the book into various regional anatomical systems described by different surgeons has in some ways proved disadvantageous. In spite of the excellent over-all supervision by the editor the quality and completeness of the various sections differ widely. The chapters written by paediatric surgeons are up to date and full of relevant information, but are very short when compared with the enormous length of the book. Some chapters, notably the section on plastic surgery by H. Gelbke, are excellent, but in others it is evident that the author is a general surgeon with relatively little experience in paediatric surgery and often with inadequate knowledge of the advances that have been made in this specialized field during the last decades, especially in English-speaking countries.

The book is beautifully produced and lavishly illustrated, and Professor Oberniedermayer is to be congratulated on the Herculean effort required to get this vast undertaking into print. The bulkiness of the work coupled with its high price will prevent many surgeons buying it, which is unfortunate, as it contains much useful information on common as well as on rare and obscure conditions.

P. P. RICKHAM.

AN ORTHOPAEDIC NOTEBOOK

A System of Orthopaedics and Fractures. By A. Graham Apley, M.B., B.S., F.R.C.S. (Pp. 357+vii. 47s. 6d.) London: Butterworth and Co. (Publishers) Ltd. 1959.

This is an orderly collection of lecture notes, rather than a textbook, on many diseases and injuries of the locomotor system. The postgraduate student will find the book comprehensive, and it will help him in his own observations and amplify the clinical teaching he obtains. There are three sections—general orthopaedics, regional orthopaedics, and fractures with dislocations, the last forming one-quarter of the book. There are advantages in studying the general conditions first, but some confusion is caused by subsequent cross-referencing. If the cross references are not followed up there will be a tendency to lay too little stress on the basic principles of medicine and surgery when considering the disease of an individual joint. However, the chapters on each joint should prove of particular value, not only in preparing for higher examinations, but also in clinical study. It would be an advantage if more information were given on the importance of the patient's age in relation to diagnosis and treatment.

The author makes no claim to originality and he raises few controversial issues, but he has succeeded in providing useful information, which can be read quickly. He stresses the elucidation of signs by the processes of "look, feel, move"; it would be helpful, however, if he indicated when feeling is to be avoided and whether "move" refers to active or passive movement. The causation of disease and deformities is stated clearly, whereas information on treatment is dogmatic, and, in a number of conditions, little is said about treatment measures as an alternative to, or before, operation. The author has used discrimination in writing of the conditions which the clinician will see in this country, and has been sparing in describing rarities. The book is published and printed in attractive style.

ST. J. D. BUXTON.

VIRUSES FOR VIROLOGISTS

Virus Growth and Variation. Ninth Symposium of the Society for General Microbiology held at the Senate House, University of London, April, 1959. (Pp. 272; illustrated. 35s.) London: Published for the Society for General Microbiology by Cambridge University Press. 1959.

This collection of papers has been written for virologists and is too technical for the general reader. Luria's introductory paper does, however, set out the remarkable way in which study of the growth and variation of bacterial viruses has contributed to knowledge of genetics, of the chemistry of virus replication, and of the function of nucleic acid in these mechanisms. The nucleic acids are the common theme of a number of papers on the growth of bacterial, plant, and animal viruses, and several new technical approaches to these studies are described.

Chemical aspects of the growth of animal viruses are discussed in detail, and other papers describe the use of fluorescent staining of nucleic acids and electron microscopy in the study of virus growth. There are also interesting papers on interference (especially in relation to interferon, which has attracted so much attention in the press), on host-controlled variation, and on one of the tumour viruses (Rous).

C. E. GORDON SMITH.

BOOKS RECEIVED

Review is not precluded by notice here of books recently received.

Growing Up in Newcastle upon Tyne. A Continuing Study of Health and Illness in Young Children Within Their Families. By F. J. W. Miller, S. D. M. Court, W. S. Walton, and E. G. Knox. (Pp. 369+xxi; illustrated. 25s.) London, New York, Toronto: Oxford University Press for the Nuffield Foundation. 1960.

Moderne Therapie der Verdauungskrankheiten. By Professor Dr. L. Demling. (Pp. 188+viii; illustrated. DM. 16.) München and Berlin: Urban and Schwarzenberg. 1960.

Playing for Life: Billy Talbert's Story. By William F. Talbert and John Seymour Sharnik. (Pp. 310+x. 21s.) London: Victor Gollancz, Ltd. 1959.

An Introduction to Pharmacology. By J. J. Lewis, (Pp. 826+xii; illustrated. 55s.) Edinburgh and London: E. and S. Livingstone, Ltd. 1960.

The Arterial Wall. Edited by Albert I. Lansing, A.B., Ph.D. Sponsored by the Gerontological Society, Inc. (Pp. 259+ix; illustrated. 60s.) London: Baillière, Tindall and Cox, Ltd. 1959.

Diagnosis in Locomotor Disorders. By Kenneth Stone, D.M. (Oxon.), M.R.C.P. (Pp. 224; illustrated. 25s.) London, New York, Toronto: Oxford University Press. 1960.

Medical Terminology for Radiographers. By Paul M. Davies, M.B., B.S., D.P.H., F.F.R., D.M.R. (Pp. 242. 15s.) London: William Heinemann Medical Books, Ltd. 1960.

Atti del XIII Congresso della Società Italiana di Gastroenterologia, Bologna, May 30-June 1, 1959. Edited by G. Sotgiu and E. Pisi. (Pp. 1,027+xv; illustrated.) Bologna: Cappelli. 1960.

Hypnotism for Medical and Dental Practitioners. By A. A. Mason, M.B., B.S. With chapters on ***Hypnosis in Dental Surgery and Obstetrics*** by K. Dawson Watts, F.D.S. R.C.S.(Ed.), and S. D. Perchard, M.D.(Lond.), M.R.C.O.G. (Pp. 223. 30s.) London: Secker and Warburg. 1960.

Atti della "Giornata" Medico-Sociale sul Reumatismo promossa dall'Istituto di Medicina Sociale in collaborazione con l'Ordine dei Medici di Vicenza. (Pp. 178. L. 1,000.) Rome: Istituto di Medicina Sociale. 1959.

The Cell of Schwann. By Gilbert Causey, M.B., F.R.C.S. (Pp. 120+xi; illustrated. 21s.) Edinburgh and London: E. and S. Livingstone, Ltd. 1960.

Man: Divine or Social. By Arthur Guirdham, M.A., D.M., B.Sc.(Oxon.), D.P.M.(London). (Pp. 230+viii. 27s. 6d.) London: Vincent Stuart, Ltd. 1960.

Clinical Scalar Electrocardiography. By Bernard S. Lipman, A.B., M.D., F.A.C.P., and Edward Massie, A.B., M.D., F.A.C.P. Fourth edition. (Pp. 474; illustrated. 60s.) Chicago: Year Book Publishers, Inc. London: Interscience Publishers, Ltd. 1959.

Management of the Aged Surgical Patient. By Sidney E. Ziffren, M.D. Chapters on ***Anesthesia*** by Stuart C. Cullen, M.D., ***Urology*** by Rubin H. Flocks, M.D., and a discussion on ***The Cardiac and Diabetic Patient Facing Emergency Operation*** by Raymond F. Sheets, M.D. (Pp. 219; illustrated. 57s.) Chicago: Year Book Publishers Inc. London: Interscience Publishers, Ltd. 1960.

Virus Virulence and Pathogenicity. In Honour of Professor J. Mulder. Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P., and Cecilia M. O'Connor, B.Sc. Ciba Foundation Study Group No. 4. (Pp. 114+viii; illustrated. 12s. 6d.) London: J. and A. Churchill, Ltd. 1960.

Progress in the Biological Sciences in Relation to Dermatology. Edited by Arthur Rook, M.D., M.R.C.P. (Pp. 480+xv; illustrated. 84s.) Cambridge University Press. 1960.

Encyclopaedia of Microscopic Stains. By Edward Gurr, F.R.I.C., F.R.M.S., M.I.Biol., F.L.S. (Pp. 498+xii; illustrated. 95s.) London: Leonard Hill (Books) Ltd. 1960.

The Mind of Your Child. By Doris Odlum, M.A., M.R.C.S., L.R.C.P., D.P.M. (Pp. 108. 4s.) London: W. and G. Foyle, Ltd. 1960.

The Natural History of Cerebral Palsy. By Bronson Crothers, M.D., and Richmond S. Paine, M.D. (Pp. 299+xi; illustrated. 32s. 6d.) Cambridge, Mass.: Harvard University Press. London: Oxford University Press. 1959.

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OSTEOARTHRITIS OF THE HIP

Primary osteoarthritis of the hip, or malum coxae senilis, is an affliction of later life causing pain, stiffness, and deformity of increasing degree which is apt to interfere with the humble activities of the elderly. It can prevent walking, gardening, and shopping, make sitting uncomfortable and sleep disturbed, thus turning the remaining joys of retirement into a torment of boredom and discomfort. In the younger person osteoarthritis can occur as a degenerative process secondary to congenital or acquired mechanical abnormality, causing a chronic disability which may try to the full the combined skills of the physician, physiotherapist, radiotherapist, and orthopaedic surgeon in turn. The last of these sees this problem as a major challenge in the field of biomechanics, and at present it seems likely to remain so unless the pathologist, the pharmacologist, or the biochemist can throw enough new light on the disease to offer prevention or cure.

At the outset the majority of sufferers are prepared to put up with moderate discomfort, knowing instinctively that the symptoms are not of serious origin, but as pain or disability increases they look for relief to the conservative measures of physical medicine and to orthopaedic aid and adjustment. That so many eventually seek the advice of a surgeon is a demonstration of the fallibility of the simpler methods. The patient with severe pain presents a difficult but enticing challenge to the mechanically minded orthopaedic surgeon, who has been remarkably industrious and ingenious in meeting it. It is well from time to time to assess the possibilities and limitations of these modern surgical methods to help the patient, several of which were reviewed recently in this journal by Mr. John Charnley[1] and Mr. P. A. Ring.[2]

Owing to the difficulties and inadequacies of major operations on the hip-joint various minor surgical procedures such as cheilotomy, capsulectomy, and neurectomy have been planned and well tried. Another, myelotomy, is at present under trial. Should the benefit of any of these comparatively simple methods have proved more than transient it is certain that they would have been universally accepted and adopted in many clinics; but the operating lists of to-day show little evidence that this has been so. Charnley mentions the four basic major surgical procedures available—namely, arthrodesis, arthroplasty, osteotomy, and pseudarthrosis, and points out that as none is universally acceptable the selection of operation for each case must be made according to the aetiology and pathology of the disease; the age, physical ability, and occupation of the patient and the extent of the disease must be borne in mind. Many variations in methods of treatment are possible, and Charnley rightly suggests that the decision to operate and the selection of the type of operation is a job for a surgeon experienced in surgery of the hip.

Arthroplasty is theoretically the ideal operation, and the search for the perfect technique has halted and enthralled some of the most able surgeons in this field—Ollier, Murphy, Robert Jones, Lexer, Hey Groves, Smith-Petersen, Pauwels, to mention a few, and more recently the Judet brothers, Charnley, and Austin Moore. In the design and execution of an arthroplastic operation for the hip three main difficulties arise; the stress of very considerable forces which fall on the structures of this area, the production of a mechanically sound joint, and the problem of joining inert material to living bone. That so many of these operations have eventually failed is not surprising, but it is perhaps encouraging for the future that 5–10% of patients are left with good hips which stand up to the strain of weight-bearing without undue stress for ten or more years. Advancement so far has been as much by trial and error and good fortune as by deduction, but scientific knowledge is gaining momentum, and a sound method may eventually evolve from a more comprehensive understanding of the effects of stress on bone, from discoveries of new materials and greater knowledge about their physical perfection, and from improvement in the bonding of inert material with living bone.

Arthrodesis is a classical operation, and there are many modifications of its original conception. Once achieved it gives a satisfactory and lasting result and is a good operation for those under 50 with unilateral disease.

Central dislocation has found favour in many clinics, especially if bony fusion is likely to be difficult to obtain. Intertrochanteric osteotomy is a less attractive procedure, but at present more than holds its own among the other methods. The rationale of such a technique is not clear and the

[1] Charnley, J., *Brit. med. J.*, 1960, **1**, 821.
[2] Ring, P. A., ibid., 1960, **1**, 827.
[3] Pauwels, F., *Der Schenkelhalsbruch, ein mechanisches Problem*, 1935. Stuttgart.
[4] Batchelor, J. S., *Postgrad. med. J.*, 1948, **24**, 241.
[5] Shepherd, M. M., *J. Bone Jt Surg.*, 1954, **36B**, 567.

explanation of its undoubted success in relieving pain elusive. This is a method well suited to labouring men, especially agricultural workers, and its definite though sometimes only moderate benefit seems to increase with the years. Modifications of McMurray's technique are often used in Britain, and the osteotomy described by F. Pauwels[3] on the Continent seems equally popular though quite different in design. The severity of the operation is only moderate, and by modern methods of internal fixation the patient can be ambulatory, without plaster, in two weeks. It is the most universally accepted operation for osteoarthritis at present and its results are moderately good.

Pseudarthrosis results in shortening and instability, but it is a good operation for polyarthritic patients with two stiff hips. J. S. Batchelor[4] has attempted to minimize the instability by a second-stage subtrochanteric osteotomy, and it is disappointing to find in the recent report by Ring that the figures are insufficient to give a pronouncement on its value as a modification. The British Orthopaedic Association, aware of the indifferent results of some operations on the hip, is undertaking research, to last over many years, on the results of arthroplastic operations on the hip. The first report was published in 1954 by M. M. Shepherd[5] and showed the inadequacy of the acrylic short-stemmed prosthesis in osteoarthritis.

The present position is that the comparatively minor operations on the hip, although more acceptable, have not proved their worth. It is clear that arthroplasty for osteoarthritis is also not acceptable as a routine surgical procedure, although it is theoretically ideal and does in a few cases give excellent results. Arthrodesis, intertrochanteric oblique osteotomy, and pseudarthrosis often give good or satisfactory results provided that the decision to operate and the choice of operation are made with full knowledge and experience of all the factors concerned.

CARE OF THE OLD

The changing age structure of the populations of industrial countries has inevitable social and economic consequences. In the last decade or two in Great Britain we have made some preparations to meet them, but the problems of this ageing population are already all round us demanding solution, and our present resources are already in danger of breakdown. The papers of Dr. J. H. Sheldon and Professor M. Roth in this issue come as a timely reminder of the nature and extent of the problems which physical and mental frailty in the elderly are setting. With increasing morbidity and social incapacity the demand for personal services is bound to become more pressing. Some say that the coming of the Wefare State has led to a lessening of the sense of filial duty. While this trend may be discernible, especially by those whose task it is to try to get old people home after a stay in hospital, it is certainly not true that families generally will not attempt to care for their frailer, older members. Dr. Ronald Gibson, in his interesting article about Denmark (p. 1231), says that it was only the "feckless few" who showed a lack of responsibility in the care of elderly relatives. In Britain less than 5% of the elderly are maintained in institutions, and a proportion of the remainder, being more or less incapacitated, are kept at home only at the cost of great personal sacrifices on the part of relations and neighbours. If the latter should withhold their voluntary labour the hospital and welfare services now caring with difficulty for the 5% would be quite overwhelmed.

The hospital services for the elderly who require medical and nursing attention beyond the normal scope of home care have in recent times been reorganized and strengthened in a manner which other countries may well envy. The policy of establishing comprehensive geriatric units to serve main centres of population has yielded rapid and surprising dividends. When properly constituted and staffed, these units invariably demonstrate greatly improved standards of care, together with a faster and sustained increase in turnover and reduced waiting-lists and waiting-times. This is evidence that they make effective use of their resources and beds, even though the latter are for the most part in old, inconvenient, and remote hospitals, kept going despite serious shortages in nursing and ancillary staffs. The pattern of geriatric hospital care already laid down is gaining wide acceptance, but many areas are still without such properly organized services, and an all-round improvement in medical staffing, buildings, and equipment in existing units is urgently required. The need is not so much for more hospital beds for the elderly as for the more efficient use of existing beds. The elderly sick are not only a future but a present problem, yet new geriatric hospitals appear nowhere in the Ministry's list of major hospital building projects, though there are plans for some new units at established hospitals. One such unit—Wakehurst House in Belfast—was recently referred to in this journal.[1]

Geriatric units find unexpected potentialities in their patients, and reactivation and rehabilitation are a major part of their work. Often 40 to 50% of those

[1] *Brit. med. J.*, 1960, **1**, 874.

admitted eventually become fit enough to return home, though they will need some domestic help and some attention from home-nursing services. There is already evidence that good geriatric units can now return people to home life faster than the community's existing services can provide the kind of social support they need. As these same services also have to assist the much larger numbers of elderly people who have never been in hospital, it is reasonable to question their adequacy. If they are not adequate, money might be better spent in improving them than in the creation of elaborate municipal preventive clinics for the elderly, which at best will attract only the energetic and least vulnerable old people, and at worst could usurp another function of the family doctor. In many areas there are no meals-on-wheels or special laundry services and too few home nurses. The shortage of home helps for the elderly is serious and almost universal. Local authorities seem reluctant to vote funds for these purposes, yet the discharge of an elderly fit person from hospital all too often depends entirely on the availability of a home help. There already exists power for local authorities to provide appliances for the handicapped to use at home and to make necessary adaptations to their houses, but this is a service which is very far from being fully developed. The numbers of beds provided for the homeless and socially helpless in the welfare homes of local authorities are increasing, but in many places the increase is not keeping pace with the demand, so waiting-lists are long, and hospital beds are occupied by those fit people ready and waiting for residential accommodation. There is need, too, for fresh thinking about the accommodation and staffing of welfare homes, so that they can effectively look after the elderly and frail residents who will look to them for care.

Rightly, in Britain we say that the proper place for the elderly is in the home and we frame our policy accordingly. We recognize that to achieve this ideal the community must be prepared to help the lonely individual and the hard-pressed relatives. But Sheldon draws a valid distinction between the earlier period of old age—up to 75 years old, when this policy is certainly practicable—and the later period when general frailty even in the healthy members becomes a serious matter. It is apparent to all who work with the elderly how rapidly this latter group is increasing. The cost, in terms of services, of attempting to keep these older old people in their homes could eventually be so great as to necessitate a change in official policy. Then the need for a great increase in hospital and residential accommodation would have to be squarely faced.

ACCEPTANCE RECOMMENDED

The Government had already accepted, on terms, the Royal Commission's report when the Council of the British Medical Association met on April 12 to decide what to recommend to the Special Representative Meeting called for May 19. The day before the Minister of Health had told Parliament that the Government would accept the Commission's majority recommendations "as a whole as they stand," provided the doctors were "ready to accept them on the same basis." This all-or-nothing offer plainly meant an unwillingness to separate the proposals for settling the profession's wage claim from the proposals for a review mechanism for making future adjustments in pay. It also meant that there was to be no negotiation. In the Chairman of Council's words, it left "almost no room for manœuvre," and the intention clearly was that the Pilkington recommendations should be taken as a whole, excluding Professor Jewkes's memorandum of dissent.

As its report to the Representative Body shows (*Supplement*, p. 232), the Council decided to recommend the Representative Body to accept the Minister's offer. In taking a favourable view of the review machinery the Council was influenced by some assurances in a letter from the Minister which elaborated those given to Dr. Wand and Mr. Holmes Sellors in their preliminary discussions on March 29. They were, among other things, that the views of the profession on the membership of the standing review body would be taken fully into account; that the Government would undertake to pass on to the review body any representations the profession wished to make to it; and that the Government was prepared to recommend the review body to allow the profession to present its arguments orally, although, the Minister added, the review body could not be tied down in advance on how it should do its work. Its terms of reference were to be as recommended by the Commission, but these, the Minister pointed out, were intentionally wide. The Commission's proposals (now also the Minister's) for the review body depart in a number of respects from those put forward by the Association, but the Council thinks that, so far as is constitutionally possible, they "provide safeguards for the future more likely to be adequate than previously enjoyed by the profession."

The Commission's financial recommendations do not fully meet the medical profession's claims, but in the Council's view they "undoubtedly represent a substantial improvement on the present position" and should not be rejected. The Council is anxious, however, about the proposed abolition of the

Spens weighting formula for part-time specialists on the score that this would "seriously militate" against part-time service in the future and endanger private practice. But a "realistic interpretation" of the Commission's comments (paragraph 206 of its report) on the calculation of the number of notional half-days of part-time specialists should, the Council believes, "offset some of these disadvantages." The Council makes no comment on the vexed question of differential payments for general practitioners, the so-called merit awards. Since this proposal need not influence the rejection or acceptance of the Commission's other proposals, it is a matter which, the Council thinks, "can be left for mature consideration."

The General Medical Services Committee met the day after the Council, and it, too, decided to recommend acceptance of the Government's terms. Its report and recommendations, already sent to all doctors in general practice in the N.H.S., will be debated by the Conference of Local Medical Committees on May 17. The Joint Consultants Committee, which speaks for all hospital doctors, has not yet defined its attitude, but is expected to meet early in May.

During the next week or two doctors will be forming their own opinions on these important matters. In particular they are likely to examine with care the proposed review machinery to see whether it is one in which they can put their faith and which promises a satisfactory relationship between the medical profession and the Government.

THE BLOOD–BRAIN BARRIER

The conception of a barrier between the blood and the cerebral tissue is derived from some old observations by Ehrlich in 1855, later amplified by L. Stern and R. Gautier[1] and by U. Friedmann and A. Elkeles.[2] One of the problems that this conception has raised is related to the exact nature and site of this blood–brain barrier, as it is now known. One suggestion made was that a pia-glia layer[3] surrounds the capillaries and that this is the site of the barrier through which some substances pass, while at the same time others are prevented from entering the brain. These suggestions and their consequences have been well reviewed.[4 5] A pia-glia or a cellular (endothelial) barrier also necessitated the theory of an extracellular space in the cerebral tissues, for if this space does not exist a special barrier is unnecessary. The importance of the blood–brain barrier relates to the therapeutic value of various drugs and of the space to the still unsolved problem of cerebal oedema.

Within the last few years electron microscopists have claimed that this space cannot be demonstrated.[6 7] H. Davson in 1956[5] reviewed this subject on the assumption that there was such a space, and more recently Davson and E. Spaziani[8] have, by means of a fresh approach, confirmed the existence of an extracellular fluid space of about 14–15% of the total brain volume. These two workers gave injections of iodide, *p*-aminohippurate, and sucrose into rabbits and showed a minimal penetration of these substances into the brain as compared with similar experiments in muscle. Yet, when isolated samples of brain were used, penetration occurred at the same rate and in a similar amount as in muscle. According to Davson and Spaziani this proves that there is a space and also a blood–brain barrier.

There are three groups of drugs whose penetration to the brain has been extensively studied—antibiotics, antisyphilitic drugs, and various cerebral narcotics. Penicillin will penetrate into the cerebrospinal fluid (C.S.F.) and therefore possibly into the brain in two to four hours.[9] With normal meninges the concentration reached is not higher than one-tenth of that in the blood, though this may be therapeutically adequate. A similar finding has been shown in patients with neurosyphilis in whom repeated large doses of penicillin were needed to raise the penicillin level in the C.S.F. appreciably, even though a bromide test indicated some increased blood–brain permeability.[10] However, it has been shown in rabbits that the entry of penicillin into the brain is greater than into the C.S.F. The results with administration of streptomycin are similar; clinical improvement may well be indicated by a greater barrier resistance.[11] Most other antibiotics behave likewise, but chloramphenicol differs in that it gains easier access to the C.S.F. and to the brain than do the others.[12 13] It has been known for some time that pentavalent arsenic penetrates the brain more readily than trivalent arsenic.[14] The amounts of mercury, as well as arsenic, in the brain even in fatal cases of metallic poisoning are not very much greater than in other organs such as the kidney.

A different situation exists in the case of narcotic drugs, most of which are lipid-soluble, a fact which may account for the difference. Ethyl alcohol—the action of which on the ability to drive is causing some controversy—was shown so long ago as 1936[15] to enter the brain to about the same degree of concentration as in the blood within 15 minutes. Similarly, ether, chloroform, and barbiturates very soon enter the brain,

[1] Stern, L., and Gautier, R., *Arch. int. Physiol.*, 1921, **17**, 138.
[2] Friedmann, U., and Elkeles, A., *Disch. med. Wschr.*, 1931, **57**, 1934.
[3] Gärtner, W., *Z. Biol.*, 1927, **86**, 115.
[4] Holmes, J. H., and Tower, D. B., in *Neurochemistry*, 1955, Springfield, Illinois, edited by K. A. C. Elliott, I. H. Page, and J. H. Quastel, p. 262.
[5] Davson, H., *Physiology of the Ocular and Cerebrospinal Fluids*, 1956, London.
[6] Schultz, R. L., Maynard, E. A., and Pease, D. C., *Amer. J. Anat.*, 1957, **100**, 369.
[7] Edström, R., *Acta psychiat.* (*Kbh.*), 1958, **33**, 403.
[8] Davson, H., and Spaziani, E., *J. Physiol.* (*Lond.*), 1959, **149**, 135.
[9] Redfearn, J. W. T., Elithorn, A., Till, K., and Ibbott, F. A., *Lancet*, 1949, **2**, 652.
[10] Smith, R. H. F., *J. ment. Sci.*, 1951, **97**, 340.
[11] Medical Research Council Report, *Lancet*, 1948, **1**, 582.
[12] Werner, C. A., Knight, V., and McDermott, W., *Proc. Soc. exp. Biol.* (*N.Y.*), 1950, **74**, 261.
[13] Glazko, A. J., Wolf, L. M., Dill, W. A., and Bratton, A. C., *J. Pharm. exp. Ther.*, 1949, **96**, 445.
[14] Hawking, F., Hennelly, T. J., and Quastel, J. H., ibid., 1937, **59**, 157.
[15] Harger, R. N., Hulpieu, H. R., and Lamb, E. B., *J. biol. Chem.*, 1937, **120**, 689.
[16] McIlwain, H., *Chemotherapy and the Central Nervous System*, 1957, London.
[17] *Psychopharmacology*, 1958, edited by H. H. Pennes, London.

and drugs such as isoniazid and emetine have been shown to penetrate the brains of animals fairly rapidly.[16]

The practical value of such work as Davson and Spaziani's in solving the problems of cerebral oedema awaits further study by neurosurgeons and neurochemists. Meanwhile the intense interest now being shown in the therapy of cerebral lesions is evident from two volumes largely devoted to this subject.[16 17]

SOLANINE POISONING FROM POTATOES

Solanine is a glyco-alkaloid which is found in the blackcurrant-like fruits of black nightshade (*Solanum nigrum*) and the redcurrant-like fruits of bitter-sweet or woody nightshade (*Solanum dulcamara*). But these are rarely eaten, and then only in ignorance of their poisonous nature. A more homely source of solanine is the common potato (*Solanum tuberosum*), whose average content is 8 mg. per 100 g. The interior of the potato contains less than this, and too little to cause any toxic effects. The toxic dose is 20 to 25 mg.

In a recent outbreak of solanine poisoning reported by G. S. Wilson[1] a hotel proprietor and his family of four ate potatoes baked in their jackets for supper on three successive Sunday evenings. All who ate the skins were ill on each occasion with vomiting, diarrhoea, and abdominal pain. The symptoms were delayed some eight hours and recovery was complete in 24 hours. The hotel proprietor, who ate only the flesh of the potatoes each time, remained well. He suggested that dipping the potatoes in chemical solutions to inhibit sprouting might have been responsible, but the substance now generally used for this purpose is not an acute irritant poison. There seems no doubt that solanine was the cause of the symptoms, for analysis showed that the potatoes contained 50 mg. of solanine per 100 g. This was twenty times as high as that found in potatoes purchased locally.

Why solanine is sometimes formed in excess in potatoes is obscure, but it is known that those tissues whose metabolic activity is greatest contain most of it—namely, the sprouts. Other outbreaks of potato poisoning have been reported, and are reviewed by Wilson. This type of poisoning is rare, and in the recorded outbreaks the potatoes responsible sometimes showed unusual features, such as a pink colour developing on the cut surface, or a brownish line near the surface, or they were sprouting or had an acrid taste. Exposure of potatoes to light favours the production of solanine, but ordinary storage does not increase the amount of it. In the present outbreak, however, the potatoes, imported from Israel, had an excellent flavour and appearance despite their high solanine content. Solanine is soluble in water and diffused by boiling potatoes but not by baking them. As it is present in highest concentration immediately under the skin, it is not surprising that only those people who ate the skins were poisoned and that all guests at the hotel escaped because they were given only boiled peeled potatoes.

[1] Wilson, G. S., *Monthly Bull. Min. Hlth Lab. Serv.*, 1959, **18**, 207.

TEMPERATURE AND DISSEMINATED SCLEROSIS

Patients suffering from disseminated sclerosis occasionally notice that their disability is worse when they are warm, and two recent papers report observations on the effect of changes in temperature in this disease. D. A. Nelson and F. McDowell[1] studied the effect of raising the body temperature in 14 patients, two bed-ridden and 12 ambulant. Five patients were heated under a cradle containing radiant-heat lamps while skin and rectal temperatures were recorded, the rectal temperature rising 1.5–4.7° F. (0.8–2.6° C.) in 30 to 70 minutes. The other nine were immersed in hot water up to the nipples, the rectal temperature rising 1–4° F. (0.6–2.2° C.) in 20 to 40 minutes. Owing to technical difficulties in examining patients under these conditions, neurological examination of the limbs was not carried out during the heating process and attention was focused especially on the visual acuity and the ocular movements. Thirteen of the patients developed new neurological signs when the body temperature rose 0.5–2.5° F. (0.3–1.4° C.), and these additional signs disappeared when the temperature was allowed to fall, but they often did so when the temperature was still at a level higher than that at which the sign appeared. Six patients were in an active stage of the disease at the time of the observations and eight were in remission; it was noted that, in the patients in remission, new signs appeared less frequently than in the others, and when they did appear a higher body temperature was needed.

C. W. Watson[2] studied the effects of cooling the body in eight patients suffering from the disease. The most effective methods were immersion to the neck or waist in cold water or enclosing the body in a plastic bag in which cooled air was circulated by an air-conditioning apparatus. In general symptoms and signs except those of long standing or great severity improved, sometimes considerably, when the body temperature fell 0.6–2.1° F. (0.3–1.2° C.), but the improvement lasted only as long as the temperature remained lowered. In two patients in whom exposure to cold did not cause a fall in body temperature there was no neurological improvement. There was no evidence that temporary lowering of the temperature had any enduring effects on the symptoms or signs in the patients studied.

The mechanism of the temporary improvement with lowering of the body temperature and production of new signs by raising the temperature is uncertain, and, as improvement persists only while the temperature is lowered, the practical applications are not obvious. These observations, however, are in keeping with those made when artificial hyperthermia or protein shock treatment was used in the treatment of disseminated sclerosis, a treatment which, because it sometimes caused exacerbation, has now rightly been discarded.

Sir Robert Platt, Bt., was re-elected President of the Royal College of Physicians of London on April 11.

[1] Nelson, D. A., and McDowell, F., *J. Neurol. Neurosurg. Psychiat.*, 1959, **22**, 113.
[2] Watson, C. W., *New Engl. J. Med.*, 1959, **261**, 1253.

Drug Treatment of Disease

ANALGESICS IN RHEUMATIC DISORDERS*

BY

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Of all the disabilities to which man is prone, none equal the rheumatic disorders in the amount of daily recurring or constant pain and discomfort which they cause over long periods of many months or years. Were it possible to measure a unit of pain, one dolor perhaps, rheumatoid-, osteo-, and other types of arthritis would probably head the list in the final reckoning. Adequate analgesic therapy, with controlled rest and exercise, is the bedrock of treatment of these and allied conditions, for which there is no simple or ready cure. No treatment "cures" them, and the patient must come to terms with his unpleasant disability and live in rough harmony with it, taking every day as many analgesic tablets as the average man and woman does in several weeks or months.

Unfortunately the most effective analgesics are habit-forming, and no drugs on the Dangerous Drugs list capable of causing addiction can be given routinely in these disorders. A second drawback is that most of the effective analgesics can cause gastro-intestinal irritation and symptoms of dyspepsia. The general rule, whatever drug is given, is to treat each patient as an individual problem, to select what appears to be the most suitable preparation in that particular case, and to instruct the patient in its regular administration at certain times, usually after or with meals, every 2–6 hours through the day, depending on intensity of symptoms and response to the drug.

This "tailoring" of the drug to the individual patient is most important. The worst time for many rheumatoids is the early morning, when painful stiffness calls for a quick-acting effective analgesic. The night hours also need to be covered in many cases, and, though heavy sedation may keep the rheumatoid patient deeply asleep until morning, the pain and stiffness are then much worse as a result. This nocturnal "gelling," or stiffening, is an important symptom of sufferers with rheumatoid arthritis, and getting out of bed and to work is the hardest part of the day for most of them. Many experience more pain as fatigue sets in towards the end of the day: night for many is a kind of Satanic sandwich of interrupted sleep with pain on each side.

ANALGESIC DRUGS

Acetylsalicylic Acid (Aspirin)

This may be given as tablets, crushed or taken whole, as soluble aspirin dissolved in water (tab. acid. acetylsalicyl. solub. (B.P.) ("disprin" or "solprin") or dissolved on the tongue ("paynocil"), or as compound tablets. The dose usually needed is 10–15 gr. (0.65–1 g.) at a time, preferably taken with food or with a little milk or milky drink and crushed or dissolved rather than taken whole.

Acetylsalicylic acid is analgesic and antipyretic. It is absorbed rapidly from the stomach and its effects are therefore felt within 10–15 minutes, lasting some 2–4 hours, though the breaking of the pain cycle may give more lasting relief of symptoms. Its excretion through the kidneys begins soon after its administration.

The drug may act as a gastric irritant, and some patients cannot tolerate it. Several workers have shown that the daily loss of a few millilitres of blood from the intestinal tract is by no means uncommon in patients taking regular doses of aspirin, but the amount lost is usually small and the patient suffers no ill effects in the vast majority of cases. Nevertheless, melaena and haematemesis do sometimes occur, and for this reason it is wise, as mentioned above, to instruct the patient to take the drug with food.

The most helpful dose in rheumatoid arthritis is usually the one taken first thing in the morning; sometimes the dose taken last thing at night also gives much relief. It is wise to have an additional dose in reserve at the bedside at night with a biscuit and a small glass of milk. Aspirin is still the main stand-by of most patients with chronic articular disease, and the average rheumatoid sufferer takes usually 8–12 tablets a day (40–60 gr.; 3–4 g.) and sometimes many more.

Allergic skin reactions and asthma are uncommon. A slight prolongation of the prothrombin time of the blood may in itself be unimportant unless there is consistent liver disease or anticoagulant therapy in progress: in such cases haemorrhage may more readily occur. Patients are therefore well advised to take some other analgesic while they are on oral anticoagulant therapy.

Aspirin tablets should be kept in a dry place and should be used within three months of receiving them, for they gradually hydrolyse in the presence of water into acetic and salicylic acids. Mixtures containing acetylsalicylic acid deteriorate more rapidly and should not be kept for more than two to three weeks.

Compound acetylsalicylic tablets and mixtures are legion. It is best to keep to tablet form rather than fluid mixtures for the reasons mentioned above. The *British Pharmaceutical Codex* (1959) contains compound tablets of acetylsalicylic acid and opium, each tablet containing 3 gr. (195 mg.) of aspirin, 1¼ gr. (80 mg.) of phenacetin, and 1 gr. (65 mg.) of ipecacuanha and opium powder. Though suitable for treating short febrile illnesses they are not suitable for regular daily long-term administration, but an aspirin-and-opium mixture containing 15–20 gr. (1–1.3 g.) of acetylsalicylic acid with 10 minims (0.6 ml.) of tinct. opii is of great assistance taken occasionally when pain is extremely severe. Such a mixture must, as noted above, be used within a period of two weeks of its being dispensed.

The most popular compound aspirin tablets are those mixed with phenacetin. Acetylsalicylic acid and phenacetin tablets B.P.C. contain 3½ gr. (230 mg.) of aspirin and 2½ gr. (160 mg.) of phenacetin per tablet. Phenacetin is seldom productive of gastro-intestinal irritation, but may cause not only the well-known

*In previous articles in this series Dr. Dudley Hart has discussed corticosteroids in the rheumatic disorders (February 13, 1960, p. 493) and Dr. R. M. Mason the treatment of gout (June 13, 1959, p. 1522).

methaemoglobinaemia, with its characteristic cyanotic hue, but severe renal damage (see *Brit. med. J.*, 1960, **1**, 714, for a recent discussion of this). A very large number of other compound tablets containing aspirin or phenacetin or both have been marketed, for, despite the later introduction of many other mild analgesics, aspirin remains the most generally useful.

Because of its tendency to cause gastric irritation aspirin is sometimes put up in buffered form. Such tablets, though popular, are not always effective in doses which leave the patient free from dyspepsia.

Amidopyrine

This has now been deleted from the *British Pharmaceutical Codex*. Although a useful analgesic, it has an ugly reputation for causing agranulocytosis, and for this reason it has been almost entirely dropped in the United Kingdom. Compound tablets are available which contain it (" cibalgin," " optalidon," " irgapyrin," " corosedine "). Sodium noramidopyrine methane sulphate (" novalgin ") carries the same risk.

Codeine

This drug is usually prescribed in small amounts in compound aspirin tablets, for as plain codeine phosphate it is too constipating for most patients. Tab. codein. co. B.P. contains 4 gr. (0.26 g.) each of aspirin and phenacetin and 1/8 gr. (8 mg.) of codeine phosphate. " Veganin " tablets have the same constituents, but with codeine phosphate 1/6 gr. (11 mg.). Patients usually find them superior as analgesics to simple aspirin, the main reason being the larger amount of analgesic substances present per tablet (8:5) rather than the small, but still slightly constipating, dose of codeine present. A soluble form is marketed under the trade name of " codis."

Sodium Salicylate

Though this drug is still given for acute rheumatic fever, it is seldom given for other forms of rheumatism, for large amounts in fluid form are necessary and it is less effective than acetylsalicylic acid as an analgesic, even in maximal doses. In rheumatic fever its use is partly as an analgesic, partly as an antipyretic. The doses given may amount to as much as 20 gr. (1.3 g.) every 2–3 hours. The addition of sodium bicarbonate to the mixture reduces gastric irritation but also increases the excretion of salicylate and lowers the blood concentration to less effective levels.

Paracetamol

This is relatively weak as an analgesic. It is deservedly popular because it causes little or no gastro-intestinal irritation and can be given with relative immunity to patients—with or without peptic ulceration—who experience dyspepsia on acetylsalicylic acid. To be effective, dosage needs to be rather higher than with aspirin, and most patients tolerate 3 or 4 tablets (1.5–2 g.) at a time.

Phenylbutazone

This drug is a long-acting analgesic which is slowly broken down and slowly excreted. Introduced (under the proprietary name " butazolidin ") as an antirheumatic rather than analgesic substance, it relieves pain in a host of painful conditions of bones, joints, and soft tissues other than the rheumatic disorders—for example, metastatic carcinomatosis and Paget's disease of bone. It is particularly effective in acute gout, and, by virtue of its even and prolonged action, in ankylosing spondylitis and osteoarthritis. In painful osteoarthritis of the hip it is frequently very helpful when other analgesics fail to give adequate relief.

It is unwise in prolonged therapy to exceed 400 mg. a day by mouth, for toxic effects—dyspepsia and, less often, rashes, oedema, and buccal ulcers—increase if a higher dose is maintained for long periods. In painful conditions of short duration, such as acute gout, larger doses up to 600 mg. or more may be given on the first day to ease the agonizing symptoms, dosage being then gradually reduced. In osteo- and rheumatoid arthritis and in ankylosing spondylitis it should not be taken lightly to suppress immediate pain but as part of a regular daily programme, for it is not effective as a quick-acting analgesic. It is absorbed more rapidly by mouth than by intramuscular injection, and, whatever its mode of action, does ease painful symptoms in a large variety of conditions. It may be given as suppositories of 250 mg. when it cannot be given by mouth—for instance, when it causes dyspepsia. The dose should be kept at the lowest effective level, and, because of the prevalence of induced dyspepsia, is best given with meals. In many cases a " backcloth " of a small regular daily dose of phenylbutazone diminishes the painful symptoms of arthritis while aspirin or some other short but rapidly acting analgesic is used for quick suppression of painful symptoms which break through the phenylbutazone.

Agranulocytosis has been reported but is extremely rare ; gastric intolerance remains the most frequent side-effect. Phenylbutazone should not be given with gold therapy, as toxic effects are very common with this combination of drugs.

REST

It cannot be overemphasized that analgesics should be used in the rheumatic disorders only in conjunction with a proper programme of planned rest and exercise. Different disorders call for different programmes. General bodily rest and local rest by splintage is as helpful in rheumatoid arthritis as it is disastrous in ankylosing spondylitis, where joint stiffness and ankylosis all too readily take place ; in this disorder exercise and activity are to be encouraged. Much of the so-called " freezing " or stiffness of a joint is directly due to pain, and full and effective analgesia may prevent true or secondary freezing by enabling simple exercises to be undertaken.

Conclusion

Pain is what brings the patient to the doctor in most disorders, and the rheumatic disorders are no exception. Few patients suffer more continuous day-to-day pain for months or years than the sufferer with arthritis. It is therefore surprising to see when we survey the therapeutic field how relatively few effective pain-relieving substances there are which are non-addictive and are relatively safe to use over prolonged periods. Though many new compounds appear from time to time few are issued without the addition of one or more of the older well-tried analgesics, such as phenacetin or aspirin, to ensure effective analgesia. Acetylsalicylic acid, with its imperfections, remains the most popular and most widely used to-day in the rheumatic disorders.

COMMUNITY CARE OF THE WIDOW

A SOCIAL SERVICE OF INTEREST TO THE FAMILY PHYSICIAN

BY

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In the autumn of 1958 a doctor's wife initiated in the London area the first practical investigation into the problem of the widow and her family. It is perhaps strange that while every conceivable group of handicapped people has long had its individual representation, several million women undergoing similar emotional, economic, and social difficulties have only just been recognized as a group in special need. In England and Wales alone there are two and a half million widows, and of every five married women in this country one is a widow. The figures are published in the Census returns, but no special study had been undertaken in this country until Marris (1958) published his book *Widows and Their Families*. He investigated the experience of 70 working-class widows with children living in Stepney. The book received little public acclaim, a further indication that the neglect of the problem was both subtle and unconscious—a painful subject which might justifiably create a resistance in the minds of many.

Bereavement and its sequelae are everyday events with which the family doctor has to deal. Usually he is the first on the scene. For him bereavement is a situation to which he has had little help to bring, until the ready production of drugs came to his aid. Now he may give relief for sleeplessness; he may deaden the more acute stages of grief; but the basic problem remains untouched.

The work of the Cruse Club is described as a pilot experiment for the counselling and practical help of widows and their families, and the following observations summarize the experience of the first year of its growth as a social service.

The Problem Stated

In the introduction to Peter Marris's book, Dr. John Bowlby summarizes the situation of the widow both in her personal and social experience. He says:

"In our present Western civilization to be widowed is to be twice-stricken; both grief and poverty are the widow's lot. A satisfactory study requires, therefore, an understanding both of the emotional and the economic implications of widowhood, and of their interaction with each other. It requires also an ability to look at suffering dispassionately and without flinching. It seems probable that one reason for the neglect of the problem is the rarity of workers with this combination of gifts.

"Grief is no respecter of persons. Whether the bereaved is young or old, rich or poor, to lose another with whom his feelings are closely linked is to suffer emotional disruption. Not only is the external pattern of his life abruptly changed, but he finds himself at the mercy of conflicting impulses of great intensity—to remember, to forget; to blame, to forgive; to seek companionship, to avoid company. No wonder this is an experience which can endanger physical and mental health, both in the short-term and the long. The problem is to understand the nature of the processes set in train by bereavement, and the conditions which assist those processes to reach a healthy outcome or which hinder it; since without such understanding neither healing nor preventive measures will be well based."

While it can be said at the outset that many widows do cope and readjust, more intimate knowledge reveals that too often they have borne more strain and stress than a concerned community would willingly pass without coming to their rescue. Many have looked back wishing they had had the counsel and practical help of such a service as the Cruse Club in the early years of bereavement.

Needs of the Widow

Guidance and counselling require maturity, tolerance, and the understanding of the irrational and conflicting emotions of the bereaved wife. Physicians are invariably the recipients of these strong feelings, both positive and negative. As one widow put it, "I blamed the doctor for letting my man die—but he didn't hold it against me." The busy general practitioner has not the time to listen, sympathetic though he may be. He will be fortunate if he can give more than the kindly word and a sedative. He needs the help of those able to take over and give the time and practical aid required. In addition to the need for understanding and for group relationships the widow needs help with her new economic situation. Many have had little experience in the handling of money affairs. The social agencies operating in the larger towns are often quite unknown to them, and at such a time the bereaved woman is little inclined to talk to strangers about her personal affairs. Most are unfamiliar with the advisory help of the Citizens' Advice Bureau, many with children have never heard of the child-guidance clinic with its team of experts in child welfare. In outlying districts their difficulties are indeed magnified, for often the only group activities are the Church and the women's institute, neither of which at the moment undertakes this counselling role.

The Widow with Children

Commenting on National Insurance and the widow, Bowlby suggests that "the plight of widows with dependant children is especially tragic. Their task is to be at once mother, housekeeper, and earner; and, because of their domestic ties, inevitably poor earners. Amongst this afflicted group there is, moreover, a subgroup which gives rise to special concern. It comprises widows with very young children who, in present conditions, find themselves under relentless economic pressure to neglect their children."

For the slightly older woman the practical problems enlarge with the age of her children: the need to provide the right education commensurate with their abilities and ages; the problem of housing, of supplementing the pension by earning; training for employment or re-employment; the supervision and care of the children—all are practical matters which call for advice and guidance and a knowledge of the right source for the right answer. In this connexion the counselling service of the Cruse Club is preparing fact sheets which will give information on relevant problems in an easily understood form.

The "One Parent" Family and its Problems

The emotional relationship of the widow and her children is perhaps of greater importance to their future stability than the more practical aspects of their background. The widow may well have an unconscious and

forbidden wish that she had no children, and thus would be relieved of the heavy task of bringing them up and providing for their care single-handed. She may seek comfort from them and become too possessive. If she has a son she may seek from him the emotional satisfactions she formerly had from her husband. This may lead to a mother fixation and either no marriage or a broken marriage for the son. Many widows' children would undoubtedly benefit by boarding-school co-education with teachers of both sexes. While we know that many have brought up their children alone with great success, those with large families often have too great a struggle and social tragedies frequently result. There is a very real need for benevolent families to take a close interest in the widow's children, so that the platform of their security may be widened and the children may feel a greater sense of support as they go out into the world. Assimilation into clubs is not enough without the close personal interest of the club worker. As widows have often said, "No one is interested in our children—and yet they may be taken advantage of because there is no protecting father in the background."

Financial Difficulties

The Controversial Earnings Rule.—All these needs of the widow are accentuated by financial hardship. The widows of Service men or of the victims of industrial accident or disease have no restrictions on earnings. Other widows can earn only a small amount before the earnings rule cuts the pension. This discrimination is hard to understand. Marris (1958) summarizes the situation well when he says, "Poverty accentuates all the morbid tendencies of grief—the isolation, bitterness, apathy; the sense of being rejected, a drag on the happiness of others—while to secure a comfortable living standard would, instead, at least encourage her to master them. Released from the fear of financial dependence, she would be less diffident in her family relationships. A widow with young children needs an income equivalent to a man's wage. While the children are under 5, it seems better that this income should not depend upon her ability to earn, since it may harm small children to be separated from their mother, even if their grandmother or an aunt would be willing to look after them. Once the children are at school, she may find companionship and interest in a job which relieves her loneliness."

Employment of Widows.—Prospective employers do not usually welcome the idea of engaging a widow whose only experience has been in the home. If she has worked before marriage she will be expected to take a refresher course. The change in role from being her own mistress in the home often makes it difficult for a widow to join the life of a large working community. She requires special reassurance that she will not be submerged in factory life. Should she wish to do full-time work she will undoubtedly have to forfeit some or all of her widow's pension under the earnings rule. If she can find employment for half the day only (which is far from easy) she may still exceed the small sum she is allowed to earn above her pension. While she may have every incentive to succeed and get on, she quickly realizes that only top-grade work and salary can free her from the rule which dogs her. She then forfeits her pension entirely and must depend wholly on her own health and strength. Training courses in other than factory and domestic work should be planned. The capacity to train is as good in women as in men. The average intelligence quotient of women is the same as that of men.

A New Understanding of the Older Widow

The family doctor knows that older patients consult him more often than do the young. Widows in their loneliness become more concerned with their bodily processes and have a greater incidence of psychosomatic complaints. The healing value of work is too well known to need emphasis, and we welcome the increasing interest in the full or part-time employment of the elderly, many of whom are physically and mentally well able to continue working long after the normal time of retirement. Many older widows are still employable. Given rest periods, their output can be quite satisfactory. Work, and a sense of being wanted and of use to the community, can be the best antidote to depression. Many schemes nowadays are designed to cater for these older age-groups. An American business man has carried out an interesting experiment in this field by starting an "old people's store." This is not a shop catering exclusively for old people; it sells exactly the same goods as are to be found in any other shop of the same kind. Its uniqueness lies in the age of the employees, none of whom—doorman, book-keeper, saleswoman, or secretary—is under 60, and most of them are much older. When the founder of the store made this the condition of employment he was warned that he was heading for bankruptcy. In fact, the new store flourished and even withstood a period of general depression successfully because all the employees were happy to be working again and gave of their very best. This had such an excellent effect on the turnover that more "old people's stores" are now being planned.

In this country the workrooms for the elderly, including many widows and widowers, are proving very successful. In these schemes the organizers obtain assembly work requiring varied degrees of skill from factories, and this is allocated according to the age and ability of the member. The work is part-time, and the same remuneration is given to all. The fellowship of the workroom is both therapeutic and prophylactic. Medical men have found a marked diminution in the psychosomatic complaints of the participants.

Development of Counselling Service for Widows

In the early stages the needs of the widows as voiced by them set the pattern for the growth and planning of the service. Contact was quickly made with the medical officers of health and through them with the general practitioners in the area, who often refer cases to the Cruse Club. Local voluntary and statutory bodies are constantly brought in. These include the Citizens' Advice Bureau, Women's Voluntary Service (mainly for clothing), child guidance and psychiatric clinics, Toc H (practical jobs done for widows in the home), the clergy (for religious difficulties), the Ministry of Labour, education officers (for boarding-school placing, etc.), almoners, health visitors, probation officers, landladies offering special rates for holidays for widows and their children, employment agencies, benevolent societies, etc.

An advisory panel operates to give help with special cases.

One of the most important developments has been the circularizing of a monthly chronicle which is sent to widows, social workers, and interested bodies all over

the country. The purpose of this journal is educative, informative, and for the encouragement of the widow. It acts as a forum for the exchange of opinions on most aspects of the widow's plight. Nine numbers have already been issued as a preliminary to the opening up of the service in other parts of the country.

In the routine of counselling the widow is encouraged to help herself, and is guided to explore the pros and cons of a situation rather than to take advice and direction. She is encouraged in freedom of decision without persuasion. There is no suggestion of management but an aid to growing independence. A great deal of help is given by one widow to another in group discussion, but the individual talk with the counsellor (who needs careful selection and regular case conferences) is vital. Through the advisory panel checks may be made on the sociological, psychological, and economic aspects of problems which come up.

Other developments have included a marketing scheme with wholesale prices, a clothing exchange, help over housing and jobs, advice on money matters, the writing of business letters, etc.

Further Education for Young Widows.—One group with special problems is the young and more intelligent widow with children, capable of benefiting from higher education up to university level. Additional help is essential in the care of the children in the home during her absence. She really needs residential help, but has not the money to pay for it.

Pattern of Marriage and its Influence on Widowhood

As mentioned above, women's basic intelligence is no whit less than men's. Yet in many marriages it is assumed that business affairs are too complicated for the woman to understand. It may be that a considerate husband wishes to protect his wife from the anxieties of money matters, or maybe it is part of a technique to call out the protective urge in the man. Some women have a fixed idea in their minds concerning what is manly and what is feminine. When they become widows they are suddenly called upon to assume the responsibilities of the husband and sometimes the father. The percentage of married women who do not know their husband's earnings, his insurances, and his commitments is very high. On the other hand, some wives are given the pay packet and hand back to the husband his allowance. This is almost a matriarchal tendency that is more frequent in the North.

In the South, perhaps because there are fewer heavy industries of the male type, the office- or shop-worker is encouraged by his wife's "little woman act" (a phrase used by a woman) to assume the whole duty of the treasurer of the marriage assets. This may lead to irresponsibility on the woman's part because of the lack of knowledge of the husband's income and his pretence regarding its size. Wise couples have a shared knowledge of their assets and liabilities and have regular budgets of a sensible and flexible kind, neither overemphasizing the financial side nor ignoring it. Life or endowment insurance and the making of a will are matters about which some husbands have a superstitious fear. Many widows who have tentatively raised the matter have been met with a suspicious reaction. In view of the fact that the expectation of life of men is less than that of women, most wives have widowhood ahead of them. There are three times more widows than widowers.

The Welfare State is not designed to relieve a husband of the responsibility of providing for the future needs of himself and his wife and family. This latter principle is enunciated in a Government publication on National Insurance. A widow, especially one with children, drawing all her allowances and working within the earnings rule, has no more than the lowest wage of an unskilled worker. If she is unable to work, the National Assistance Board cannot help her beyond this standard. For these and other reasons the reality situation in marriage demands consideration of the future. Such consideration could well include the possibility of the wife's being encouraged in securing a training or skill when the children have reached a reasonable age. Mature men will face these realities and make provision accordingly. One last practical suggestion for the better-off groups comes from the Married Women's Property Act.

"Under the Married Women's Property Act, 1882, Section II, a policy of insurance can be taken out by a spouse on his or her life and expressed to be for the benefit of the surviving spouse or the children or both. This creates a trust in favour of the persons named, and while such policy is not exempt from duty, it pays duty as an estate by itself. This will normally mean that it will pay a much lower estate duty. The general rule is that all the property passing on a deceased's death is added together and the rate of estate duty chargeable is fixed by the total value of all the property. This does not apply to policies under the Married Women's Property Act. This is why the rate of duty may be very much lower. The premiums payable can be spread over as short a period as five years, and the policy can be made fully paid up after three annual premiums" (Pollard, 1959).

If women are to be encouraged to train for work of any kind husbands should share more often the activities and responsibilities of the home. As the wife shares more in the life of the community the over-sheltered tendency which we see in many marriages can be mitigated.

Effect of the Loss of the Father on Children.—Many studies have been made of maternal deprivation in the case of infants, but little has been investigated as yet of the problems of the fatherless child. Boarding-school staffs and social workers are well aware of the deep emotional disturbance in this kind of deprivation and its effect on schooling and psycho-biological development. More information is needed on this topic, which is an important aspect of the counselling service for widows.

Summary

A pioneer experiment in counselling and practical help for widows is described.

The findings resulting from the group discussions in the Cruse Club for widows are given.

The effects of bereavement, especially in its emotional aspects, are mentioned. Special case-work is required to help the widow to adapt to her new circumstances and to encourage her to resist the desire to cut herself off from the community.

The economic, vocational, and psychological aspects are examined.

The problems of widows with children are considered.

The pattern of marriage, with reference to provision for the needs of widows, is outlined.

My thanks are due to Mrs. Margaret Torrie, founder and chairman of the Cruse Club, for collaboration, encouragement, and inspiration; and to Dr. George Day, Dr. Arthur Bowen, and Dr. Richard Mackarness for helpful comments on the manuscript.

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CARE OF THE ELDERLY

PREVENTIVE MEDICAL CLINICS

[FROM A SPECIAL CORRESPONDENT]

A three-day conference on "Preventive and Clinical Medicine for Older People," jointly arranged by the welfare group of the Society of Medical Officers of Health and the British Geriatrics Society, was held in Bristol from March 31 to April 2. On the first morning, under the chairmanship of the president of the Society of Medical Officers of Health, Dr. J. STEVENSON LOGAN, the conference discussed preventive medical clinics for the elderly.

Teddington Clinic

Dr. JOHN MADDISON (M.O.H., Twickenham) told the story of the establishment of the Teddington clinic for preventive medicine for older people and of its first year and a half's operation. His work with Drs. R. C. F. Smith and G. Olbrich* had convinced him of the great need for clinics for the elderly to prevent or postpone the onset of many disabilities which were not detected early because the sufferers did not go to their doctors. From 1955 to 1958 he had struggled to persuade the Middlesex County Council and the Ministry of Health to consent to an experimental clinic, and in 1958 a one-year trial, to be followed by a report, had been approved. He had also spent much time and trouble in reassuring the local G.P.s that the clinic was not going to do their work for them nor entice away any patients, and that no patient would be referred for treatment without prior full report to his own doctor. He hoped that this had forestalled mischief-makers who played off one doctor against another, and he paid tribute to the co-operation of the practitioners concerned.

The clinic, which was still in the experimental stage, was open to any elderly person who wished to attend. It was staffed by himself and a woman doctor, his superintendent health visitor, and one or two other nurses. It did not cater for casual attendances, consultations, second opinions, or dealing with conditions under treatment by G.P.s. They wanted to see those who believed themselves to be healthy and who wanted advice on how to remain so. Most of what was ascertained there as part of a comprehensive check-up was associated with the ageing process; the whole examination took two hours and involved the use of apparatus not normally available to G.P.s, who in fact often sent patients for health supervision there. There was, he insisted, no duplication of services.

Dr. Maddison said that in the first 132 people who attended 156 types of disability had been found, totalling 1,367 or an average of about 10 per person, though not evenly spaced. Obesity, hypothyroidism, and particularly atherosclerosis were commonly found; for the latter they had encouraged the taking of maize oil containing linoleic acid creamed up with "complan" and a flavouring as a pre-breakfast drink. Other troubles which the clinic helped to put right were defective vision, ill-fitting dentures, defective hearing, and unwanted hair in women. Anaemia (in about one-third of all the patients), chest and abdominal complaints, and disabilities of the lower limbs, particularly crippling of the feet in women, were common. Physiotherapy for the rheumatically affected would be valuable, but they had not got a physiotherapist as had Dr. J. A. Gillet in his Dagenham clinic.

*Brit. J. prev. soc. Med., 1955, 9, 113.

Rutherglen Consultative Health Centre

The second paper, presented by Dr. W. FERGUSON ANDERSON, regional consultant in diseases of old age, Scottish Western Region, speaking for himself and his co-author, Dr. NAIRN R. COWAN, M.O.H., Rutherglen, described the experience gained at the Rutherglen Consultative Health Centre for Elderly People established in Rutherglen by the initiative of Dr. Cowan as long ago as 1952. Its aims, they said, were: (1) the provision of clinical facilities for medical assessment at the premises of the local authority; (2) the integration of hospital, local-authority, general-practitioner, and voluntary services for old people; (3) the extension of the health visitor's work to the aged; (4) the setting up of a chiropody and physiotherapy service; and (5) the study of the physical, mental, and social aspects of ageing.

The clinic premises also housed chest and gynaecological out-patient clinics of the hospital board, and chiropody and physiotherapy services of the local authority. There was also liaison with old people's voluntary services. The M.O.H. first saw old people referred by their doctors and carried out a thorough medical (including *x*-ray) and social assessment; later in the week the consultant physician also examined them, with the M.O.H. in attendance, and a joint conference was held on each individual, the results being communicated to his G.P.; health visitors were also fully involved. Dr. Anderson outlined the findings of the clinic's work, mentioning that 4% of the people seen were admitted to hospital for short-stay assessment (of the first 1,200 seen at the clinic 44 were admitted). Nearly all the patients reported back from time to time, and frequent visiting was required of 4% of those seen.

They were trying to build up a picture of the "normal" old person. From the records of 546 people aged 60 to 89 selected as healthy by strict criteria they found that the range of blood-pressure in healthy old people was wide, and systolic blood-pressure readings in the highest age range (80–89 years) reached a figure of 220 mm. for males and 230 mm. for females. Irrespective of age, diastolic blood-pressures of up to 104 mm. for males and 108 mm. for females were found. From an investigation into the blood-pressure of 304 women it was shown that the increase in the systolic and diastolic blood-pressure means was related to the degree of associated adiposity and was not significantly influenced by the presence of varicose veins. It was also found that, when the extent of adiposity was greater than 24% over ideal weight, a significant increase in systolic and diastolic blood-pressure was to be expected; that the heart enlarged with age; and that healthy obese old men were practically non-existent. A study of the cervical spine had revealed that C 7 was often spared from osteoarthritic changes and appeared to act as a fulcrum between cervical lordosis and thoracic kyphosis. They were still analysing their social data.

They summed up by saying that the work was interesting and had proved a valuable experience for the clinic's staff; the morale of old people in the area had markedly improved; they had provided the G.P. with a useful service; and such a centre as this was an essential feature of an integrated scheme for the elderly.

Chiropody Service

Mr. H. ROSENSTEIN, chief chiropodist of a London County Council health division, gave a valuable paper on the setting up of a chiropody service for the elderly, now a very live subject since the Minister of Health in March, 1959, gave way to the pressure for development of a service by the local health authorities under Section 28 (i) of the National Health Service Act. The speaker thought it unfortunate

that age seemed to be the sole qualification for securing treatment under the Ministry's scheme. Many old people with functionally good feet insisted on treatment as a right, but those who suffered genuine foot troubles were the very people who needed frequent and regular attention.

The Society of Chiropodists saw many problems facing the local health authorities. Capital outlay in equipping each chiropody unit would be £200, and at least 1,000 such units might be required for the whole country. Chiropodists might be overwhelmed by the demand, and recruitment could only be from those already in private practice; the Minister had in fact decided to empower local health authorities to arrange for treatment, if they so wished, at chiropodists' surgeries. The knotty questions of referral of patients could be solved only with the co-operation of doctors in testifying to the patient's disability—this applying to the eligible classes of the physically disabled and expectant mothers as well as to the aged. Mr. Rosenstein pointed out that, if several chiropodists worked at one centre, treatment could be expedited and a "wait-and-return" ambulance system be arranged. He described also the difficulties in treatment of the aged, including the costly business of providing padding and insoles; a prosthetic department at a centrally sited local-health-authority foot clinic would do much to divert patients from the already overworked hospitals and at the same time reduce the cost to the hospital service. Another important need was a domiciliary scheme for house-bound patients, and he thought mobile chiropody units might be the answer. On the local organization of the service, Mr. Rosenstein suggested that local health authorities should consider appointing an administrative chiropodist at county or divisional level to act as liaison between the M.O.H. and the chiropodists, to receive the G.P.s' requests for treatment, and to advise generally on chiropody matters.

Correspondence

Because of heavy pressure on our space, correspondents are asked to keep their letters short.

Emotional Stress and Coronary Disease

SIR,—In 1953–4 I had the privilege of being a member of a team of physicians and psychiatrists of the staff of Temple University Hospital, Philadelphia, led by the late Dr. Edward Weiss, which investigated the emotional factors in coronary occlusion. In this study 43 patients admitted to the hospital suffering from myocardial infarction were examined with reference to their personality structure and life situation in an attempt to determine the role of emotional factors on the onset, course, and recovery from coronary occlusion. An equal number of hospital patients, matched for age, sex, and race, served as controls. For details of this study I would refer readers to the published paper,[1] but I would, if I may, quote part of the summary which is particularly relevant to your leading article (March 19, p. 866):

"Some of the more important findings in a study of 43 patients with coronary occlusion from an emotional standpoint compared with a control group matched for age, sex, and race are presented. They suggest among the multiple factors having to do with coronary occlusion gradually mounting stress of emotional original may be significant. It occurred in 49% of our cases, while no such evidence could be found in the control group. Acute emotional stress occurred in 16 (37%) of the coronary group and in only 4 (9%) of the control group. Evidences for gradually mounting tension will frequently be denied by the patient but suggested by a member of the family, often the spouse. Physicians must be trained in psychodynamics to obtain such information."

It is in respect of these findings that I would venture to criticize Dr. M. Newman (April 2, p. 1050). His inference that there is necessarily a relationship between the degree of responsibility in work and emotional strain is dubious. The strain, or lack of it, entailed in any work is, I feel, related to the intellectual equipment and training of the individual for the job plus the satisfaction derived from doing it. Indeed, the withdrawal of responsibility is often more traumatic than having to cope with it, as witness the frequent psychological upsets which follow retirement. In our series of "coronary" patients, therefore, work as such played only a small part in the sum total of emotional distress laid bare. Much more important seemed to be the stress from factors outside their work—that is, for example, in their domestic and sexual difficulties and in their problems of interpersonal relationships.—I am, etc.,

Horton Hospital, Epsom. HENRY R. ROLLIN.

REFERENCE

1 Weiss, E., Dlin, B., Rollin, H. R., Fischer, H. K., and Bepler, C. R., *Arch. intern. Med.*, 1957, **99**, 628.

Detection of Early Glaucoma

SIR,—The recent report on routine tonometry for detection of early glaucoma by Drs. J. E. L. Bendor-Samuel and William May and Mr. Howard Reed (March 19, p. 853) is commendable and illustrates again that the incidence of glaucoma in people over 40 years of age is about 2%. Similar figures have emerged from mass screening tests carried out by several local public health departments in New England states. I would like to comment briefly on two points arising from the paper from Winnipeg.

(1) The writers state that "primary chronic glaucoma has a point in its natural history beyond which the disease progresses to blindness whatever treatment is employed." Whilst wholeheartedly approving of the emphasis thus placed on earliest possible diagnosis and the gravity of the condition when advanced, I think it is fair to state that such a hard-and-fast rule does not always appear to be valid. It is our experience that some patients who are first seen with quite extensive field loss may indeed retain what visual field remains for many years, provided the intraocular tension is adequately lowered at all times. When field loss does continue, however, then the lower the tension, generally the slower the loss. Dr. Paul Chandler, of Boston, has pointed out that whatever the stage of the disease, if medical regimen, successful operation, or both, lower the tension significantly, then further field loss can often be prevented. An eye with a normal disk appearance and no field loss may withstand an increased pressure and show no functional loss for many years, whereas a disk which is already damaged, though only partly or shallowly cupped, is less able to tolerate similar tensions. A deeply cupped glaucomatous disk is much more susceptible again and thus criteria for satisfactory control must be accordingly more severe. Not all normal disks withstand raised pressure equally well, and it is commonly observed that larger, pale, myopic disks, as well as those with unusually deep physiological cups, are more vulnerable than the smaller, rosy disks with prominent blood vessels seen in high hyperopes quite often. An "average" tension is not necessarily a "normal." Readers who have glaucoma themselves or who are otherwise concerned with the

prognosis once field defects have become manifest are urged to read the masterly report on long-term results by Chandler,[1] some of whose patients were followed carefully for over 30 years.

(2) Mention is made by your contributors of the important red-herring of abnormal scleral rigidity causing Schiotz readings to be too high or too low, depending on the rigidity of the ocular tunics being excessive or the converse. Now that the Goldmann applanation tonometer is available, the factor of abnormal scleral rigidity can be eliminated and a purer reading of intraocular pressure obtained. Likewise, errors due to unusual corneal dimensions are avoided since the applanation tonometer displaces an insignificant volume of intraocular fluid. Comparison of Schiotz-scale reading with the applanation reading, using the Friedenwald pressure-rigidity nomogram, provides a rapid, simple, and much more accurate way of estimating scleral rigidity than by using paired Schiotz readings with different weights as described in the paper. The snag, of course, is that the applanation tonometer is an expensive, additional instrument which can only be employed in combination with the slit-lamp microscope. The cruder method is valuable.

If the Schiotz tonometer is to be used routinely to measure intraocular pressure as part of a general physical examination—and I agree with Dr. Bendor-Samuel and his colleagues on the feasibility and rewards of this measure—practitioners should be aware of some of the limitations of the instrument and be wary of accepting a reading as being within normal range if the patient has a high refractive error, previous history of eye injury, eye operation or disease, or in the presence of the thyrotropic type of endocrine exophthalmos. Many a high myope with early glaucoma has been missed because of low scleral rigidity. Finally, I would like to make a plea for stating the intraocular tension as a Schiotz-scale reading as well as the estimate in mm. of mercury using a certain calibration scale. Some centres still use the 1948 scale, for example, whereas many others use the 1956 scale. At the Massachusetts Eye and Ear Infirmary we generally accept that normal eyes may show a range from 3 to 9 scale divisions using the Schiotz tonometer with a 5.5 g. weight, though patients with a tension of 3/5.5 g. sooner or later show evidence of glaucoma. Suspicion should be aroused with a scale reading of 3.5/5.5 g. Diagnosis of early open-angle glaucoma may be difficult when tonography and provocative tests give borderline results, but these patients are safe if they remain under observation.—I am, etc.,

RAYMOND HARRISON.

Massachusetts Eye and Ear Infirmary,
Boston, U.S.A.

REFERENCE

[1] Chandler, P. A., *Amer. J. Ophthal.*, 1960, **49**, 221.

Sarcomatous Change in Diaphysial Aclasis

SIR,—The paper entitled "Sarcomatous Change in Three Brothers with Diaphysial Aclasis" by Dr. J. D. S. Knight (April 2, p. 1013), whilst being of unusual interest, may yet be misleading and possibly fallacious for those concerned with the aetiology and causation of primary bone sarcoma. Solitary osteochondromata, indistinguishable histologically from the individual tumours of diaphysial aclasis, only rarely become malignant, although Jaffe[1] reported sarcomatous change in 14% of a series of cases of multiple tumours—an unusually high figure compared with other reports. The writer has knowledge of one example of sarcoma complicating the issue among eight cases of diaphysial aclasis, but no malignancy in a series of 55 solitary osteochondromata (Bristol Bone Tumour Register records).

The main problem in assessing the incidence of sarcomatous change in relation to either solitary or multiple osteochondromata lies in the difficulty of the histological diagnosis of malignancy in cartilaginous tumours—one of the most vexed problems of bone pathology. With mounting experience and due reflection upon the anomalous features of "chondrosarcoma," one is forced to adopt a very critical attitude to the diagnostic criteria proposed by any author, however eminent. Cartilage is a tissue easily engrafted; moreover, when neoplastic in bone, its disposition defies complete eradication with the curette, so that any large chondroid tumour of a major bone not infrequently recurs unless some more radical surgical procedure is adopted. With all due regard for clinical acumen, such recurrences, when they are encountered, are all too frequently construed into evidence of "low-grade malignancy," even in the face of a series of histological reports denying evidence of malignancy. It might therefore be well to amend Dr. Knight's comment to read: "In many cases it is difficult to confirm the diagnosis (of chondrosarcoma) *with* biopsy."

In Cases 25 and 26 described by Dr. Knight the pelvic site of the progressive tumours might well suggest a difficult problem even for the most adept operator, and tumours of cartilage seldom—if ever—respond satisfactorily to irradiation. In the absence of any sign of metastases, it would seem from the details cited that these two men died from the local effects of their tumours. Before passing judgment upon the diagnoses made, one would wish for much more objective information about the tumours, with special reference to their invasiveness and histomorphology (Case 2), and the mode of death in Case 25. Whilst one is aware of the widely accepted view that post-adolescent growth in any osteochondroma is ominous, yet in the writer's experience it does not invariably connote malignant mutation, although a tumour may thus grow to considerable size.

Any mass of heteroplastic cartilage may undergo further growth after adolescence, with consequent mineralization and/or degeneration, thus initiating a focus of potentially unstable connective tissue in lieu of mature formed elements. The report of examples of sarcoma in three sibs with diaphysial aclasis, if fully substantiated beyond all reasonable doubts, adds valuable evidence not so much to the concept of a heritable form of skeletal sarcoma as to the predisposition to malignant metaplasia in misplaced excessive cartilage. This latter idea has its analogy in osteogenic sarcoma of elderly persons among whom in south-west England 65% have a background of Paget's osteitis deformans. Marked racial differences exist in the incidence of Paget's disease, and there is some suggestive evidence that a genetic factor may have a bearing upon such inequalities. Were diaphysial aclasis as common among juveniles as Paget's disease is among old persons in England, then "clinical" chondrosarcoma would be much more frequently seen without the necessity to postulate a heritable form of sarcoma of bone. Before accepting such "clinical" cases, however, as proved examples of chondrosarcoma, much work remains to be done in the characterization of this tumour, particularly in establishing the connexion between the clinical and radiological findings, the accessibility and treatment applied, the histomorphology and gross pathology, and the final outcome of such tumours.—I am, etc.,

C. H. G. PRICE.

Pathology Research Laboratory,
University of Bristol.

REFERENCE

[1] Jaffe, H. L., *Arch. Path. (Chicago)*, 1943, **36**, 335.

A New Exanthem ?

SIR,—Dr. Bernard Peck in his letter entitled "A New Exanthem ? " (March 19, p. 877) has given a very fine description of a disease which is probably identical with erythema infectiosum, also called "fifth disease." This infective disease is mentioned by Banks in his book *Common Infectious Diseases*.[1] I happen to have seen two cases in the last few weeks.—I am, etc.,

Harrow Weald. A. LETCHNER.

REFERENCE

[1] Banks, S., *Common Infectious Diseases*, 1949, 1st ed. Edward Arnold, London.

Glycyrrhetinic Acid

SIR,—With regard to Dr. Ian Martin-Scott's letter (April 2, p. 1057), we should like to point out that, whereas the names 18α-glycyrrhetinic acid and 18β-glycyrrhetinic acid correctly refer to two distinct, pure substances, the term "glycyrrhetinic acid" has no precise meaning.—We are, etc.,

Department of Biochemistry, St. Mary's Hospital Medical School, London, W.2. E. E. TURNER. R. T. WILLIAMS.

Dermatology

SIR,—The publication of Dr. H. R. Vickers's most interesting and valuable paper on "The Place of Dermatology in a General Hospital" (March 26, p. 893), coming shortly after the pronouncement of the Committee on Dermatology of the Royal College of Physicians (see *Brit. med. J.*, February 13, p. 490), has done a good service in drawing attention to the importance of this subject. It is time that general medical and surgical opinion was made fully aware of the valuable role that the dermatologist can play not only in helping the general practitioner with his problems but also in advising physicians and surgeons on obscure problems with skin manifestations.

Dr. Vickers has emphasized that a good dermatologist is also a good physician, who has in addition a special knowledge of and interest in the cutaneous variations of visceral and systemic disorders. A better understanding of the value of co-operation between dermatologists and other hospital departments would be forthcoming if more attention were paid to the dermatological training of medical students. When a student commences the study of medicine and surgery in hospital not only does he learn the clinical manifestations of disease but also undergoes a systematic course of general pathology. Skin diseases are as much a part of medicine as are pneumonia, gastric ulcer, or coronary thrombosis, and, as every practitioner knows, just as common and often more troublesome. It is rational, therefore, to adopt the same procedure in teaching dermatology and give instruction in the elementary pathology of the common skin disorders at the same time as the clinical manifestations are taught. Such a course of instruction, even if only very short, would make the understanding and diagnosis of skin eruptions infinitely easier. At Glasgow Royal Infirmary a short course of instruction in elementary skin histology is included as part of the students' routine training in pathology. How much more useful is this than ignoring such an important subject and spending the time instead elaborating on the details of some rare condition which the average doctor would perhaps see once in his or her lifetime.

May I add that Dr. Vickers in his article omitted to mention in Table I that the skin department of the Glasgow Royal Infirmary was established as a separate teaching unit in 1910 under the charge of Dr. Alex Morton ?—I am, etc.,

Skin Department, Glasgow Royal Infirmary. J. O'D. ALEXANDER.

Mid-stream Urine from Women

SIR,—I should like to support the claim of Drs. E. C. Wood, J. H. M. Pinkerton, and R. M. Calman (March 26, p. 961) that it is unnecessary and potentially dangerous to request catheter specimens of urine from female patients. I reported in 1932[1] that it was possible to obtain clear specimens of urine during menstruation without using a catheter, and shortly afterwards developed the "two pot" technique which is used in my wards.

After an ordinary wash with soap and water the patient squats with her thighs widely separated, either on the floor or over the lavatory pan with the seat raised. She starts to pass water into the vessel underneath her, but when the stream is good she projects it away from her body and collects it in a sterile vessel (preferably with a handle). The three important points are (*a*) that the thighs should be widely separated, (*b*) that there should be a good stream of urine which can be projected, and (*c*) that it should be collected at a distance from the body. I do not allow a catheter to be passed unless the patient cannot get out of bed. The nursing staff, once they get used to it, find that this technique saves time.—I am, etc.,

Bradford. G. W. THEOBALD.

REFERENCE

[1] Theobald, G. W., *Lancet*, 1932, **2**, 1380.

Abortion and Ergometrine

SIR,—The letter from Dr. J. R. Saunders, of University College Hospital, London (February 13, p. 497), disturbs me. He blames general practitioners who are called to cases of abortion for not administering ergometrine parenterally when there is severe bleeding, and quotes the reason given him by one doctor that he "did not think that ergometrine acted on the uterus early in pregnancy."

I am afraid that I had the same idea. It was based largely on a paper, also from University College Hospital, by Schild, Fitzpatrick, and Nixon,[1] in which were described experiments on the action of certain drugs on the human uterus in early pregnancy—the first trimester and up to 20 weeks. It was shown that ergometrine in early pregnancy acts mainly on the cervix, causing it to contract, and that it may or may not cause contraction of the corpus. Oxytocin, on the other hand, induced a powerful contraction of the corpus without action on the cervix. Oxytocin is, it is concluded, the drug of choice for use in abortion.

Perhaps there have been some further researches on this subject at University College Hospital with which I am not acquainted. If they have been published I should be glad to have the reference.—I am, etc.,

Sydney, New South Wales. F. J. BROWNE.

REFERENCE

[1] Schild, H. O., Fitzpatrick, R. J., and Nixon, W. C. W., *Lancet*, 1951, **1**, 250.

Drugs for the Menopause

SIR,—Professor T. N. A. Jeffcoate in his article on "Drugs for Menopausal Symptoms" (*Brit. med. J.*, January 30, p. 340) shows little sympathy with the sufferings of menopausal women, and expresses the opinion that most of their complaints are neurotic and can be traced to environmental causes. Even admitting that most of the symptoms are vasomotoric, there are other troublesome skin, vascular, articular, and mental conditions from which menopausal women may suffer. Menopause is the time of a woman's life when the ageing process advances, and in modern times the loss of good looks entails serious handicaps for women in occupational or social life. These women deserve our sympathy and help,

It is generally accepted that the climacteric symptoms are the result of the cessation of ovarian function, and the low level of oestrogen is a causative factor of many post-menopausal conditions. The ovaries are the weakest link in the chain of the endocrine glands. Their decline upsets the whole endocrine system and accelerates the process of ageing. The appropriate treatment, therefore, is the giving of sex hormones. There is evidence that these hormones not only relieve the climacteric symptoms but slow down the ageing process in animals and human beings. Masters[1] suggests continuous oestrogen-androgen treatment in old people, and Shelton[2] calls oestrogen therapy a "physiological gerontological tool" for postponing regressional changes.

There exists an exaggerated fear of using oestrogens in women because of uterine bleeding, and of the possible cancerogenic effect of these hormones. As to the uterine bleeding, this can be prevented by the right dosage and the combination of oestrogen and androgen in a ratio of 1:5. Should bleeding occur, a diagnostic dilatation and curettage might be necessary to exclude a malignant condition, otherwise the bleeding is of no importance. The theory of cancerogenic effect of oestrogen is derived from animal experiments, but there exists no convincing evidence that oestrogens have ever produced cancer in human beings. On the contrary, oestrogens have proved useful in advanced cancer of the breasts and of the prostate gland. The hormonal theory of cancer is one of many theories, but, so far, clinical observations have failed to substantiate this theory satisfactorily. I have been using oestrogen and androgen implants, according to the cytological findings in the vaginal smear, for the last fifteen years on 500 menopausal women, and have not seen one case of genital cancer which might be attributed to the oestrogens. Other workers in this field have come to similar conclusions.[1-5]

I am convinced that a rational treatment of menopausal women with sex hormones is of great benefit, and that the fear of uterine bleeding and cancerogenic effects is exaggerated.—I am, etc.,

London, W.1. E. SCHLEYER-SAUNDERS.

REFERENCES

1 Masters, W. H., *J. Geront.*, 1953, **8**, 33.
2 Shelton, E. K., *J. Amer. Geriat. Soc.*, 1954, **2**, 627.
3 Hellbaum, A. A., Ishmael, W. K., Duffy, M. L., and Payne, R. W., *J. Geront.*, 1958, **13**, 163.
4 Fels, E., *Acta Endocrinol.*, 1958, **28**, 349.
5 Larson, J. A., *Obstet. and Gynaec.*, 1954, **3**, 551.

SIR,—You may be interested in the regime I have been using in my practice for the last four years for the treatment of menopausal flushes. After explaining that the flushes are not serious, that they are not as obvious to others as the patient fears, etc., I inquire how many she has per day, and whether or not they can be endured without difficulty. As a working rule I do not treat those having six or less per day, and treat nearly every patient who has 12 or more per day. I do not promise abolition but merely reduction in the number and severity of the flushes.

The regime consists of a course of 30 tablets of stilboestrol given over five months. The usual dose is 0.1 mg. daily. The first course is 10 days; the second is eight days, started 30 days after the first; the third six days, starting 32 days after the second, etc.

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Menstruation rarely occurs, and, when it does, its timing is a good indication whether or not it is due to oestrogen withdrawal. The low dose makes side-effects unusual, and only occasionally is it inadequate so that a higher dose is indicated. Sometimes a second course is requested from 11 to 15 months later.—I am, etc.,

Edmonton, London, N.18. JOAN CHAPPELL.

SIR,—Those correspondents who have commented on my contribution to your series of articles on "The Drug Treatment of Disease" (January 30, p. 340) do not all appear to have appreciated that I was writing primarily on the use of drugs for menopausal symptoms and not on the treatment of menopausal symptoms in general. In indicating the small place of drugs and hormones in its management, I did not decry the importance of the syndrome to the patient nor did I attribute it to neurosis. Rather did I emphasize that sufferers from a genuine and distressing climacteric upset, as well as those who wrongly attribute their symptoms to the climacteric, usually require much more sympathetic and painstaking handling than is involved in the mere administration of a few tablets of oestrogen. This, again, is not to say that oestrogen does not have its place in well-selected cases.

I am sorry that Dr. G. L. Davies (February 27, p. 643) thinks that to distinguish between "climacteric" and "menopausal" symptoms is merely verbal hair-splitting. The distinction appears to me fundamental to an understanding of a problem of which, as Miss Josephine Barnes says (p. 643), our knowledge remains incomplete. Until we do know more, however, it seems illogical to suppose that symptoms can be caused by a lack of oestrogen, and that they can be relieved by administering ethinyl oestradiol in 0.01-mg. doses, when a woman is cyclically secreting oestradiol in amounts equivalent to 0.05 mg. ethinyl oestradiol three times daily—as she must be if she is still menstruating.—I am, etc.,

T. N. A. JEFFCOATE.

Department of Obstetrics and Gynaecology, University of Liverpool.

*** This correspondence is now closed.—ED., *B.M.J.*

Oversea Career Appointments

SIR,—Service in overseas territories under the jurisdiction of the Crown has afforded to many a satisfying and honourable career. Doctors from this country have established in these territories traditions of service and created a respect for the best standards of British medicine. As a consequence of political developments officers serving overseas have of recent years in many instances found their careers prematurely terminated

and have had to return to this country where the opportunities of entering into a satisfying and new career are no longer readily available. The development of National Health Services in this country is responsible for this difficulty. Under these circumstances anyone accepting at the present time an appointment in Her Majesty's overseas services is exposed to grievous hazards. On appointment by the authorities in London he is transferred to the services of an overseas administration which is responsible for his salary, pension, and, in event of political change, for such compensation as he may get. In the event of abolition of his appointment responsibility for reinstatement in this country is the officer's own responsibility.

Our Association has for long urged that the Government in this country should be prepared to accept far greater responsibility for the officer's career, and it is with deepest regret that I personally could not advise any doctor in this country at the present time to apply for the permanent appointment in British Honduras advertised in your issue of April 16 (advertisement p. 47).

The British Medical Association is well aware of the great need for doctors overseas and is ardent in its support of any scheme which will meet those needs, but it is unfair to ask any individual doctor to accept the hazards and uncertainties of career appointments in the overseas services unless, and until, he can be assured that in the event of premature termination of his overseas post he can be guaranteed satisfactory reinstatement in this country. Her Majesty's Government are in large measure responsible for the developments which are occurring overseas. These we do not criticize. What we do criticize is the manner in which doctors in Government services are being individually sacrificed. To advertise a career appointment in British Honduras at the present time would seem to be unrealistic and misleading on the part of the Colonial Office, which even now must be considering constitutional change.—I am, etc.,

Edinburgh. ERIC C. MEKIE.

Speech Therapy and Child Guidance

SIR,—The letter from Dr. David T. Maclay and others (April 2, p. 1054) brings up important issues of principle and practice relating to the proper function of the speech therapist. The authors rightly stress that the emotional factor, whether as a basis or merely a superstructure, has to guide specialized treatment of speech disorders, and this is a strong argument in favour of the speech therapist's working in close liaison with the child-guidance team. When, however, they state that the speech therapists are expected to resolve the emotional difficulties of their patients, and to administer psychotherapy and play therapy, we may well ask, "Who expects it of them, and is it a reasonable demand"? As the writers say, it certainly brings up the question of training, and in an acute form. The speech therapist as such is certainly not trained for this work any more than for psychiatric social work, another role which, we are told, some of them find themselves forced to assume.

The first suggestion of Dr. Maclay and his colleagues, of co-operation with the child-guidance team, is certainly an excellent one. Local authorities should be encouraged to house their speech-therapy clinics as close as possible to the child-guidance clinic, and not to delay referring to the latter all children undergoing speech therapy whose emotional difficulties require psychiatric attention.

The manner in which the resources should be pooled requires careful consideration. The writers' second suggestion implies that speech therapists should be given some smattering of training in the techniques of child psychotherapy. To those of us who are actively interested in maintaining the standards of this training (e.g., the Association of Child Psychotherapists) this must appear as a dangerous and reactionary proposal. It would surely be wiser for the therapy of children who require treatment of their emotional problems as well as symptomatic treatment of their speech disabilities to be shared, under the co-ordinating supervision of the child-psychiatrist, between the speech therapist and those whose training should have made them competent to treat emotional disorders (and it is to be hoped that this includes child-psychiatrists, and not only child-psychotherapists, as implied by the writer). The situation would, of course, be different if and when the time comes that speech therapists are *adequately* trained in child psychotherapy.—I am, etc.,

London, W.1. HELEN GILLESPIE.

SIR,—We agree with Drs. David T. Maclay, Stella E. Mason, and Leopold Stein (April 2, p. 1054) that the work of speech therapists should be *related* to child guidance. There is indeed a great need for more and better communication of factual data about the child, his family, and what each "therapy" is doing. This is, however, a very far cry from the suggestion that speech therapists should be trained to carry out psychotherapy or play therapy.

The understanding and use of play as a means of helping children to develop emotionally and intellectually is recognized in many fields of education and its value in infant and nursery schools is undisputed. But it is high time that the term "play therapy," used as synonymous with psychotherapy, was abolished. Play has no more therapeutic value than speaking; both are forms of communication in children and used as such in psychotherapy, though always with the aim of increasing verbalization. The therapist helps the child to *verbalize* his thoughts, but this is not the same thing as interpretation. Interpretation should be reserved for making the child aware of something which was previously unconscious. Slap-happy interpretation of such symbolic or other unconscious material that the unskilled worker may recognize in painting or play can be very traumatic. Many people may know how to manipulate a scalpel, but we would not trust them to do surgery without adequate training. Child psychotherapy is a highly skilled profession, and the so-called play therapists are now being replaced by trained child psychotherapists who undertake several years' training in recognized centres.

Though child-guidance clinics undertake both therapeutic and educational work, the two should not be confused. The therapeutic aim is to set the child free from the difficulties which exist in the present or are relics from the past which prevent its development, while the educational aim is to further the development and provide additional opportunities for children, often only possible after they have been freed sufficiently by psychotherapy. It is in the field of education in its widest sense that the speech therapist should function,

not in psychotherapy. We sympathize with the frustration of speech therapists who cannot get on with their job because some children are too emotionally disturbed to accept their help. The solution to this problem is not to try to turn speech therapists into amateur psychotherapists, but to improve the diagnostic and treatment levels of child-guidance clinics, and to ensure better communication between professional workers in the related fields.—We are, etc.,

SUSANNAH DAVIDSON.
NORAH GIBBS.

Paddington Group Child Guidance Training Centre, London, N.W.1.

Wards for Non-smokers

SIR,—As a chest physician I am in daily contact with people who cannot tolerate any form of tobacco smoke. From personal experience I can fully appreciate their sentiments when they tell me they are unable to attend the cinema, theatre, or travel in a vehicle where smoking is permitted, because the fumes cause dyspnoea and acute distress. If these people cannot cope with it for this short period, what must it be like for them when they are compelled by either illness or accident to remain in a hospital ward for several weeks? Ask yourself, Is it fair under the present Health Service, when everyone contributes to the upkeep of these institutions, that no provision is made for these people?

It is regrettable that so few of the medical profession realize the fact that even the slightest amount of smoke can permeate a whole ward, enough to cause untold misery to emphysematous, bronchitic, and asthmatic patients. One elderly blind lady was compelled to forgo her gastro-intestinal-tract investigations on this account.

Of course, the most sensible thing would be to prohibit smoking in all hospital wards, as is done on the Continent. To prohibit smoking in one part of the same ward is useless. I am aware when someone is smoking a hundred yards away, even although I cannot see them: I get a tightness in my chest.

With the approval of the National Society of Non-smokers I hope to present a petition to the Minister of Health, signed by registered medical practitioners, urging him to provide side wards on all medical and surgical blocks where patients can have their treatment in wards free from tobacco air pollution. I, the undersigned, will be pleased to supply spare petition forms to doctors willing to sign or obtain signatures from their colleagues who—although they may be smokers themselves—realize the urgent necessity for these wards.—I am, etc.,

48, The Drive, Leeds, 8. DAVID A. HERD.

Smokers' Lung Cancer

SIR,—Dr. W. E. Hadden (March 26, p. 969) is not correct in his description of the methods of curing tobacco for pipes and cigarettes. Leaf tobacco for pipes in the United Kingdom is not mainly air-cured, but, like that used for cigarettes, is principally flue-cured. Secondly, the method of curing leaf for cigarette tobacco in the U.S.A. is not the same as that for curing leaf for pipe tobacco in the United Kingdom. On the contrary, cigarettes in the U.S.A. contain an appreciable proportion of Burley tobacco which is not flue-cured, whilst pipe-tobacco manufactured in the United Kingdom does not usually contain such tobacco.

We understand that the leaf used in pipe-tobacco in Australia does not usually differ fundamentally, in the way it is cured, from that used in cigarettes in that country or in this country.—I am, etc.,

H. B. GRICE,
Assistant Secretary,
London, W.1. Tobacco Manufacturers' Standing Committee.

Tropical Pulmonary Eosinophilia

SIR,—I have read the articles on diethyl carbamazine in tropical pulmonary eosinophilia by Drs. A. Shanker, R. K. Bhargava, and B. N. Shrivastava, and by Drs. Kedar Nath and S. N. Pandeya (January 9, pp. 100 and 104). While agreeing with most of the conclusions, I feel that the one regarding parenteral therapy is not justifiable. I have treated 19 cases of definite tropical eosinophilia during 1958–9 with parenteral diethyl carbamazine ("unicarbazan"), three doses of 400 mg. each intramuscularly at an interval of two days, and have had excellent result in all.

The symptomatic improvement occurred in an average of four days, while the eosinophilic count came down to normal within about a week. There was not a single case of toxicity (one case vomited five minutes after injection, with no further symptoms), but one great drawback was severe pain, which, however, was overcome by adding 0.5 ml. of procaine (1%). It may still be argued that parenteral therapy has no advantage over oral therapy. I agree, but perhaps there is still some place for it in general practice.—I am, etc.,

Kuala Lumpur, Malaya. K. SUNDRAM.

Disseminated Histoplasmosis

SIR,—The interesting paper by Drs. J. H. O. Earle, J. H. Highman, and Eunice Lockey (February 27, p. 607) prompts me to record another case of *Histoplasma capsulatum* infection.

A male patient, aged 55, who had lived in India and Malaya, where he had suffered from malaria and amoebic dysentery, was treated in this country in 1951 for hypertensive heart failure in another hospital. He returned to India and two years later came back to this country and was admitted to Southlands Hospital with congestive heart failure due to hypertensive and ischaemic heart disease and auricular fibrillation. The usual treatment resulted in some response and he was discharged a few months later. During his stay in this hospital he had albuminuria; his blood urea was 35 mg./100 ml. and his serum proteins normal.

He was readmitted to this hospital in October, 1954, with severe heart failure and oedema and ascites. The liver was enlarged. Blood pressure 170/100. There was desquamation of elbows and dorsal surface of hands. The eyes were slightly protruding and there was some thyroid enlargement. Two weeks after admission an ulcer developed on the inside of his right cheek which became gradually larger and deeper. His heart condition deteriorated rapidly and before death in November, 1954, he coughed up blood-stained sputum. During the last weeks of his life his blood urea was between 50 and 60 mg./100 ml., and on one occasion electrolyte estimations were as follows: sodium 126 mEq/l., potassium 5.62, chlorides 83.6.

Necropsy results: free fluid was found in the left pleural cavity and some in the right. The left lower lobe showed

infarction. The heart was greatly enlarged, mostly due to left-sided muscular hypertrophy (weight 740 g.). No valvular disease; coronaries patent. Some free fluid in peritoneal cavity. Spleen enlarged, weight 440 g. The liver was moderately enlarged; nutmeg appearance. Both suprarenals were partially replaced by yellowish tumours, the right 34 g., the left 22 g. in weight. There was a rim of normal cortex preserved. The kidneys showed some old infarction and the bladder a diverticulum. No other pathological changes were found.

The patient had obviously died from hypertensive heart failure and pulmonary infarction. The nature of the suprarenal tumours was not realized at the time. The suggestion was made, of course, that it was tuberculosis, but it did not look typical for that. Histological preparation of the suprarenal tumour revealed masses of *Histoplasma* which showed sharply defined capsules with round or oval bodies that could be stained well with Gram, but much better with the periodic-acid/Schiff stain. Only kidney and pancreas were preserved for histological studies, which did not show any evidence of histoplasmosis. The ulcer in the mouth was unfortunately not sectioned. It is fairly obvious that this patient had been infected in India.

I have to thank Dr. I. Friedman for his help with the histological diagnosis and also Dr. F. Varley, physician at Southlands Hospital, for the use of his notes.

—I am, etc.,

K. S. RODAN.

Pathological Laboratory,
Southlands Hospital,
Shoreham-by-Sea, Sussex.

Paediatric Prescribing

SIR,—In his interesting article on "Paediatric Prescribing" (March 12, p. 794) Professor Wilfrid Gaisford makes no reference to the special care needed in prescribing chloramphenicol to newborn infants. The warnings by Van Gelder[1] and Sutherland[2] that large doses of chloramphenicol could cause fatal cardiovascular collapse in newborn infants were based only on clinical impression, and in at least one case gross accidental overdosage had occurred. Sutherland *et al.*[3] and Burns *et al.*,[4] however, make it clear that after doses of no more than 100 mg./kg./day (approximately 50 mg./lb./day) the concentration of the drug in the blood of the newborn infants regularly reaches levels three or four times, and occasionally six or seven times, higher than the therapeutic levels reached in older patients. Sutherland *et al.*[3] have also shown that, calculated on the basis of body weight, the lethal dose of chloramphenicol is many times smaller in the newborn than in the adult rat.

We regard chloramphenicol as a most useful drug and have used it for many years in cases of severe neonatal infection with apparent impunity (and adequate therapeutic effect, where this could be assessed) in doses of not more than 20 mg./lb./day (approximately 40 mg./kg./day).—We are, etc.,

MARGARET E. BARTON.
GERALD A. NELIGAN.

Princess Mary Maternity Hospital,
Newcastle upon Tyne.

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4 Burns, L. E., Hodgman, J. E., and Cass, A. B., *New Engl. J. Med.*, 1959, **261**, 1318.

Tetanus Immunization

SIR,—For the last two years a scheme has been carried out successfully in this hospital commencing with the injured patients. The aim being to immunize the working community, especially outdoor workers, abattoir attendants, butchers, grocers, farmers, etc.; allergic type of patients, such as asthmatics; and children. Not only does this give the patients immunity against tetanus but reduces the risk of serum reactions in the susceptible patients and, for the more regular attenders to the accident department, saves unnecessary injections of antitetanus serum (A.T.S.), the wait thereafter, and the further risk of serum reactions.

Scheme

1. All patients attending the accident departments here in Barrow, or at Ulverston (very few), who sustain any type of abrasion, cut, dog-bite, or embedded splinter, etc., are given 1 ml. A.T.S., irrespective of age. The names and addresses are noted in a register at the time of injection and are checked by the casualty filing clerk when she collects the accident cards in the morning and at the end of the day. The exceptions to this being: (*a*) Fully immunized patients who may be given a booster of tetanus toxoid (T.T.). (*b*) Partly immunized patients—that is, those who have had two doses of T.T., the latest being less than six months previously. (If the second dose is more than six months previous but less than nine months, a final dose of T.T. is given—this catches an occasional patient who has not attended for the final injection after notification has been sent.) If the patient gives a history of having had A.T.S. previously but of having had no allergic manifestations, he is given a subcutaneous test dose of 2 min. (0.1 ml.) A.T.S., followed half an hour later, if no general reaction, by remainder of the 1 ml. Should the patient, however, give a history of allergies then 2 min. 1/10 dilution of A.T.S. is given subcutaneously, half an hour later a 2 min. full-strength dose, and a further half-hour later the remainder of the A.T.S.

2. Six weeks after their A.T.S. injection the patients are recalled to commence the T.T. course. If they attend their name is crossed out in the A.T.S. register, and their postcard filed six weeks ahead ready for (3).

3. The second injection of 1 ml. T.T. is given six weeks after (2), the patients being sent for. If they attend, their postcard is filed six months ahead and the old filed one discarded.

4. Six months after (3) a final 1 ml. T.T. is given and their postcards discarded.

Any children who have not had either whooping-cough and/or diphtheria immunization are started on such a course at the same time as they are given their first T.T. On completing the course, the medical officers of health are notified. They consider that this catches a few more into the net who would otherwise not visit the clinics.

Statistics

6,417 patients received A.T.S. in the accident department; of these, 84.32% returned to commence the immunization course. Having commenced the course, 89.91% returned for a second injection and 88.72% completed the course. Of those who had two toxoid injections, 93.41% completed the course. The following table gives the number of patients involved. The number in each category varies from week to week as new patients start the course and others finish.

Year of Birth	Before 1945	1945–51	1952–9	Totals (All Ages)
One T.T. injection only ..	633	165	116	*914*
Two T.T. injections ..	860	379	314	*1,553*
Immunized	1,789	778	380	*2,947*
Total patients involved ..	*3,282*	*1,322*	*810*	*5,414*

N.B.—The ratio of non-attenders in the above categories is 6 : 1 : 1.

The above scheme is working smoothly here now, especially recently when clerical aid became available. It may not be applicable everywhere, especially in areas with a high turnover of casualty officers, but the scheme itself need not be run by them. Any doctor who understands the procedure would suffice, and, once such a scheme is commenced and organized, a change over in medical officer should not alter the working of the scheme.—I am, etc.,

North Lonsdale Hospital, Barrow-in-Furness. P. A. GARDNER.

Live Polio Vaccine

SIR,—I should like to support Dr. Margaret Agerholm's protest (March 26, p. 966) against the proposed trials by the Medical Research Council of live oral poliomyelitis vaccines. I agree that the proposal is most unethical in that it involves vaccination without consent. What possible right has the M.R.C. to do this ?

Further, to disseminate live viruses in an entirely uncontrolled manner at this time when the rising tide of background radiation from nuclear explosions may well induce dangerous mutations in them seems positively reckless. As students we were warned of the dangers of "meddlesome midwifery," but the danger to-day seems to be from meddlesome prophylaxis.—I am, etc.,

Darlington. WILLIAM C. FOTHERGILL.

Polio Risk to Europeans in the Tropics

SIR,—All medical practitioners who have served recently in West Africa will sympathize with Professor Harold Scarborough's plea (*Journal*, February 20, p. 570) for Europeans proceeding to West Africa to be vaccinated against poliomyelitis. Before I left Nigeria the cases amongst Europeans were mainly uninoculated young adults who had recently arrived in West Africa.

There is no doubt the indigenous population in West Africa becomes immunized in childhood to poliomyelitis by subliminal infections. I understand that blood sera in Nigeria show that most indigenes have acquired immunity against poliomyelitis by the time they are young adults. The incidence of poliomyelitis therefore now resembles the position which one had in West Africa in regard to yellow fever prior to inoculation of all expatriates against that disease. The European cases were then a pointer that yellow fever was endemic but rarely seen in the indigenous population. Now the few cases of poliomyelitis in uninoculated Europeans show that the poliomyelitis virus is widespread but not seen amongst West Africans except for a few paralytic cases in children.

Persons going to visit or reside in a country outside Europe other than the United States of America or Canada are included in this country in the priority classes for poliomyelitis vaccination. It is hoped that everyone proceeding to tropical countries will take advantage of this offer. In this connexion I should like to stress that African children born in this country will be as liable to develop poliomyelitis in Africa as the European, once they have lost any passive immunity obtained before birth.

If Governments could insist on poliomyelitis vaccination for immigrants the few cases amongst Europeans would soon be stopped in West Africa, but I doubt if this step could be taken by signatories to the International Sanitary Regulations. However, shipping companies and air lines could point out to travellers to the tropics the desirability of having poliomyelitis inoculations prior to leaving the United Kingdom at the same time as they advise the need for yellow-fever inoculation and vaccination against smallpox.—I am, etc.,

Wimborne, Dorset. WILLIAM E. HADDEN,
Late Deputy Director of Medical Services, Northern Nigeria.

Adenoidal Hyperplasia in a Mongol

SIR,—I read with interest the letter (March 12, p. 799) from Dr. G. Parry Williams on his findings of adenoidal hyperplasia in a mongol. I, too, have recently anaesthetized a mongoloid boy aged 11 for multiple dental extractions. This patient had a developmental age of about 4 years, and as well as showing the usual signs of mongolism he had a congenital cardiac defect, diagnosed as Eisenmenger's complex. His voice was peculiarly deep and husky, although he showed no signs of secondary sexual development, and he had difficulty in articulation, which was thought to be in part due to his macroglossia and in part to his retarded mental development.

Following induction of anaesthesia with thiopentone and succinylcholine, the patient's lungs were inflated rhythmically with oxygen without difficulty. A No. 5 nasal Magill endotracheal tube was passed as far as the oropharynx. Some obstruction to the tube at the level of the posterior nares was felt, but no bleeding was produced. On introducing the laryngoscope, the view obtained was essentially the same as that described by Dr. Parry Williams—a mass of lymphoid tissue extending downwards from the base of the tongue and filling the glosso-epiglottic recess. The epiglottis was infantile in type, and it was not possible to see the glottis. The tonsils were also grossly enlarged.

I used the same manœuvre as Dr. Parry Williams to bring the glottis into view—i.e., backward pressure applied to the prominence of the thyroid cartilage. The endotracheal tube was then guided through the rima glottidis, and it was possible to make a more leisurely inspection of the larynx. The right vocal cord appeared normal, but the left vocal cord was attached posteriorly in the region of the left cuneiform cartilage, and was longer than the right vocal cord. Presumably this abnormality could account for the boy's peculiar voice.

I agree with Dr. Parry Williams that the possibility of this type of adenoidal hyperplasia should be borne in mind when selecting the anasthetic technique to be used in a similar patient.—I am, etc.,

St. Bartholomew's Hospital, London, E.C.1. IAN S. PATERSON.

Pathology for the G.P.

SIR,—Dr. J. C. Valentine, Dr. R. B. H. Tierney, Dr. D. Stark Murray, and Dr. Michael Wade have indicated (March 19, pp. 875–6) that many pathologists are willing to perform post-mortem examinations for general practitioners. In York we also are prepared to, and occasionally do, provide this service, but I think that a sense of proportion should be exercised in assessing what is possible as against what is desirable.

In this area we provide a total laboratory service similar to that described by Dr. Stark Murray in his article in the *Journal* of February 6 (p. 415), our total specimen "units" (latest system) for the year being 54,000, i.e., 7% less than his, and our proportion of work for practitioners being 18% of the total, against his 23% (most of our "prothrombins" are kept in hospital control). However, we have only *three* whole-time pathologists and a biochemist to set against his *eight* whole-timers, and we feel that there must be many other areas staffed, like us, in such a way that it makes

any additional organization or activity, such as the performing of post-mortem examinations for practitioners, so very difficult to do that we feel we are bound to discourage requests in all but the most exceptional cases.

The hospital authorities here agree to pay the undertaker's charges for moving bodies in the way the Editor indicates in his note following Dr. Wade's letter. Incidentally, we always insist on practitioners obtaining *written* consent for post-mortem examinations.—I am, etc.,

Pathology Laboratory, County Hospital, York. G. A. C. SUMMERS.

Shoes and Feet

SIR,—I was interested to read your leading article upon "Shoes and Feet" (February 13, p. 488) but disappointed in the quotations and conclusions reached by the writer. I feel that the quotation, "Foot-disabilities are not caused by ill-fitting shoes, as I have seen many of these disabilities in the feet of Negroes and Chinese who have never worn footwear of any kind," is extremely poor logic besides being extremely vague. The conclusion is based on the premise that there is dubiety whether footwear causes deformity or not.

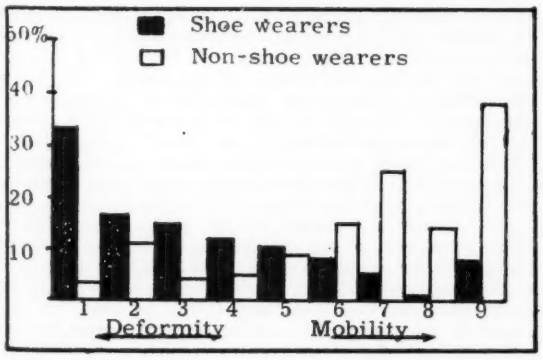
The only way this problem could be solved is by tackling the problem on a research basis in a population which is both shoe-wearing and non-shoe-wearing. This was attempted in Hong Kong and the results published.[1] Briefly our findings were:

Frequency of Deformities Among Shod and Unshod (Table II)

Deformity	Shod (Per Cent.)	Unshod (Per Cent.)
Hallux valgus	33	1·9
,, rigidus	17	10·3
Varus fifth toe	14·4	3·7
Hammer-toe	11	4·7
Flat-foot	10·1	7·5
Metatarsus atavicus	7	16·8
,, latus	7	38·3
,, primus varus	6	24·3
Bound feet	1·5	
Hypermobility of the metatarsus	0·9	13·1

This chart (Chart I in the paper) shows the frequency of deformity in relation to mobility. The numbered bars represent the following: (1) hallux valgus; (2) hallux rigidus, (3) varus fifth toe, (4) hammer-toe, (5) flat-foot, (6) metatarsus atavicus, (7) metatarsus tarsus primus varus, (8) hypermobility of the metatarsus, and (9) metatarsus latus.

Conclusion: the foot in its natural form is mobile and flexible without any of the complaints often encountered. When the foot becomes restricted by the wearing of stockings and shoes, its natural form becomes altered and fixed deformities develop, and with them symptoms.—I am, etc.,



Department of Surgery, University of Hong Kong. A. R. HODGSON.

REFERENCE

1 Sim-Fook, L., and Hodgson, A. R., *J. Bone Jt Surg.*, 1958, **40A**, 1058.

Shoes for Children

SIR,—How can Dr. Margaret Emslie (April 2, p. 1052) claim that a "round-toed shoe, *tout simple*, may be an even greater hazard than a pointed-toe" in the production of a hallux valgus? A rounded toe may displace the terminal phalanx of the first toe towards the centre of the shoe, but this is certainly not the "first and irrecoverable stage in the creation of a hallux valgus." A pointed shoe, however, invariably displaces the proximal phalanx of the first toe at the metatarso-phalangeal joint, to produce proximal hallux valgus, the deformity which may later give rise to a painful bunion. Because pointed shoes are always designed with the point in the midline of the shoe, it is not possible to insist on the point being opposite the big toe as Dr. Emslie says she can.

It is obvious that any reputable shoe shop must use a foot-gauge when fitting a shoe, and I found that the shops use either the Brannock device or the manufacturer's own foot-gauge. But no foot-gauge can, or should, substitute for the art of fitting by hand, which is always used by experienced and well-trained shoe-fitters.—I am, etc.,

Area Health Office, Town Hall, Ealing, London, W.5. CATHARINE HOLLMAN.

Doctors in South Africa

SIR,—As a member of a committee of South Africans in London, news has just reached me that amongst the many arrests in the present emergency in South Africa the names of the following 12 of our medical colleagues appear: Dr. D. V. Chetty, Dr. Y. M. Dadoo, Dr. Omar Hassim, Dr. M. Hawthorne, Dr. A. Kazi, Dr. Colin Lang, Dr. Hans Meidner, Dr. Krishna Moodley, Dr. M. M. Motala, Dr. G. M. Naicker, Dr. Sader, and Dr. P. Tsele. In several cases I have reason to believe that their husbands or wives have also been imprisoned.

May I appeal through your columns for doctors to appeal to the South African High Commissioner in London for their speedy public trial? Any of your readers who feel moved to assist these colleagues and their dependants can send donations to Christian Action Defence and Aid Fund, 2, Amen Court, London, E.C.4. —I am, etc.,

London, N.W.6. MAX JOFFE.

Dr. James Brown Memorial Library

SIR,—Friends of the late Dr. James Brown may like to know that his large collection of journals and cardiological reference books has been given to the department he founded to form a memorial library. The majority of the journals have now been bound and housed in his old department, where they constitute an invaluable source of reference. A few issues of the cardiological journals are missing.

It may be that some colleague would be willing to present to this library the missing issues so that the

collection can be completed. The journals concerned are *Archives des Maladies du Cœur et des Vaisseaux*, three numbers missing between 1940 and 1956; *American Heart Journal*, three numbers missing between 1940 and 1956; *Circulation*, October, 1958; *British Heart Journal*, July, No. 3, 1954. Oddly enough, in most cases where a journal is missing, there exists a duplicate journal of the wrong month.—I am, etc.,

Sheffield Region Cardiovascular Centre,
City General Hospital,
Sheffield, 5.

D. VEREL.

POINTS FROM LETTERS

Natural Childbirth

Mrs. GEORGE WIERNIK (Bushey Heath, Herts) writes: As a doctor's wife, a State-registered nurse, and the mother of three daughters, two of whom were born by orthodox methods, the third by conscientiously putting into practice Dr. Grantly Dick-Read's teaching, I feel impelled to comment on your annotation (March 12, p. 790) on Natural Childbirth. . . . Dr. P. Vellay's suggestion that "the Read method offers the woman a passive role" is quite ridiculous, to my mind, as it was the very fact that I had something positive to concentrate on—i.e., deep breathing and relaxation—that helped me so much, as well as at long last having learnt *how* to relax. . . . The Frenchman who avers that "the Russian method is more acceptable to Frenchwomen because it appeals to the mind, whereas the British method appeals to the musculature," betrays ignorance of Dr. Dick-Read's teaching, which emphasizes constantly that the battle of controlling one's body and behaviour is fought and won in the mind. The best attendants are those who interfere with one as little as possible, leaving wife and husband alone "to get on with it." . . . Finally, it is stated that the mother gains mentally. This is very true, and, besides gaining confidence, I know that I am not the only one to gain spiritually.

Osteoarthritis of the Hip

Dr. JAMES F. BRAILSFORD (Birmingham, 15) writes: The excellent articles by Mr. John Charnley and Mr. P. A. King (March 19, p. 821 and p. 827) on the treatment of osteoarthritis recall to my mind the prophetic words of Sir James Walton to young surgeons (*Brit. med. J.*, 1950, **1**, 206): "Perhaps in the lifetime of many of you these marvellously skilled operations will cease to be performed and will be regarded as curiosities of the past." . . . Hugh Owen Thomas and Sir Robert Jones, who received immortality by their contributions to orthopaedic surgery, so far as I can read, were opposed to much joint surgery and to the use of foreign materials for bone and joint repair—their respect for nature and Hilton's rest was constant. They, I feel confident, would have supported the conscientious practice of Yoga rather than meddlesome interference.

Massive Gastric Haemorrhage after Salicylates

Mr. M. A. HOSSAIN, F.R.C.S. (The Royal London Homoeopathic Hospital), writes: With reference to Dr. M. Dales's letter (March 26, p. 969), doses over 6 g. of salicylate per day may be necessary to prolong prothrombin time and produce bleeding in a large number of people, but this does not imply that individual variation and susceptibility do not exist. . . . Gastric erosion can bleed repeatedly, irrespective of blood prothrombin level. Correction of hypoprothrombinaemia with vitamin K is not a guarantee that the lesion itself will not bleed again.

Students' Acceptance of Psychiatry

Dr. J. C. MCKERROW (London, W.C.1) writes: May I call the attention of Dr. Denis Hill (March 26, p. 917) to my hypothesis about human behaviour, reviewed in the *Brit. med. J.* of February 27, 1932 (p. 384), *Novius Organum*?

Obituary

Sir ARCHIBALD McINDOE, C.B.E., M.D., M.Sc.

F.R.C.S., F.R.C.S.I.(Hon.), F.A.C.S.(Hon.)

Sir Archibald McIndoe, plastic surgeon to St. Bartholomew's Hospital, London, and the Queen Victoria Hospital, East Grinstead, Sussex, died in his sleep on April 12, at the age of 59. His work as consultant in plastic surgery to the Royal Air Force during the second world war won him international fame and the lasting gratitude of hundreds of burned and injured patients.

[*Walter Stoneman*

Archibald Hector McIndoe was born at Dunedin, New Zealand, on May 4, 1900. From the Otago Boys' High School he entered the University of Otago as a medical student, and graduated M.B., Ch.B. from the University of New Zealand in 1923, gaining a medal in clinical medicine and surgery. After graduation he held the appointment of house-surgeon at Waikato Hospital, and then obtained a foundation fellowship at the Mayo Clinic, holding this from 1924 to 1928. He graduated M.Sc. in pathology at the University of Minnesota in 1927, and after a year as a William White travelling scholar he became an assistant surgeon at the Mayo Clinic. In 1930 he came to London and was appointed chief assistant in the department of plastic surgery at St. Bartholomew's Hospital, where his cousin and mentor, Sir Harold Gillies, who was also from Dunedin, had built up a reputation second to none in his specialty. After taking the Fellowship of the Royal College of Surgeons of England, McIndoe joined Sir Harold in partnership, and in the course of years he, too, became a leading figure in the surgical world. Besides his appointment at Bart's, he was plastic surgeon to the Chelsea Hospital for Women and St. Andrew's Hospital, Dollis Hill, and consulting plastic surgeon to the North Staffordshire Royal Infirmary, the Hospital for Tropical Diseases, and Croydon General Hospital.

In 1938 he was appointed consultant in plastic surgery to the Royal Air Force, and on the outbreak of the second world war he became surgeon-in-charge of the now famous plastic and jaw injury centre at the Queen Victoria Hospital, East Grinstead. The help and support he gave to his R.A.F. patients were in the very best tradition of medicine, and the famous Guinea-pig Club was but one of the ways he devised to encourage men who had come through a shattering ordeal. But his work as a plastic surgeon was by no means confined to injuries, and his name will be remembered in connexion with operations for the treatment of hypospadias and for the cure of congenital absence of the vagina. He was a Hunterian professor of the Royal College of Surgeons of England in 1940, and in 1958 he delivered the Bradshaw lecture before the College on the subject of facial burns. A member of the council of the College and until recently a vice-president, he had been active in recent years in helping the College find the funds needed to finance its great expansion. A former president of the British Association of Plastic Surgeons, he was president of the Section of Plastic Surgery at the Annual Meeting of the B.M.A. in 1956.

Sir Archibald McIndoe received many honours for his outstanding work. Appointed C.B.E. in 1944, he was knighted three years later. For his war service he was decorated by the Governments of France, Netherlands,

Poland, and Czechoslovakia. An honorary fellow of the American College of Surgeons and of the Royal College of Surgeons in Ireland, he was an honorary M.D. of the University of Uppsala.

He was twice married: first, in 1924, to Adonia Aitken, by whom he had two daughters, and, secondly, to Mrs. Constance Belchem.

P. H. J. writes: Archie McIndoe was at the pinnacle of his profession when he died suddenly last week, and in addition to being very well known in this country he was the proud possessor of an international reputation which has rarely been equalled.

McIndoe was richly endowed with natural gifts of artistry and a fine pair of hands, but from the earliest days his career was built up on a basis of solid achievement. He had great determination and an incredible capacity for work, and these qualities became more and more evident as time went on. He was a superb craftsman, and, watching him at work, one was always conscious of the enormous gap between the competent and the great. There was no wasted time or effort; he handled tissues with great delicacy and sureness of touch and he was never satisfied with anything but a perfect result.

McIndoe was an inspiring teacher, a leader of men, and he attracted surgeons from all parts of the world to train under him at East Grinstead. Many of these men have become pioneers of plastic surgery in their own countries, and they will certainly carry on the McIndoe tradition in divers parts of the globe. McIndoe's outstanding qualities as a man were perhaps even more remarkable than his prowess as a surgeon. He had an amazing facility for inspiring confidence and the will to live in those who were most badly maimed.

He will perhaps be remembered best for his untiring efforts directed towards the rehabilitation and welfare of his wartime patients. McIndoe realized that the miracles of surgery are without any true value unless the patient is fitted to take his place again in society, and he rightly stressed the surgeon's overriding responsibility in these matters.

Archie had a wonderful warmth of personality, and, regardless of all the honours which were showered upon him over the years, he remained approachable and friendly. He hated red tape, the pompous, and the insincere, but he was always pleased to help and encourage anyone who sought his advice, provided the individual himself was prepared to work and fight for what he considered to be right.

Much has been written about his other interests and achievements, about his outstanding service to the Royal College of Surgeons and to British plastic surgery, but he will be remembered best by the many to whom he gave new life and hope.

W. R. FORRESTER-WOOD, M.B., B.Ch., F.R.C.S.

Mr. W. R. Forrester-Wood, senior general surgeon in the Brighton and Lewes and Mid-Sussex hospital groups, died in his sleep at home in Brighton on April 6. He was 57 years of age.

William Rodney Forrester-Wood was born on June 25, 1902, the son of a general-practitioner-surgeon in Southport. It was his original wish to enter the Army, but the loss of sight in one eye at the age of 12 prevented this. He was educated at Cheltenham College, and at the age of 16 was apprenticed to a firm of engineers. After some years world depression caused his father to advise a different career, and he entered Gonville and Caius College, Cambridge, to study medicine. Going on to St. Bartholomew's Hospital for his clinical training, he qualified in 1929 and graduated M.B., B.Ch. in the following year. After holding resident appointments at Addenbrooke's Hospital, Cambridge, the East Ham Memorial Hospital, and the Royal Sussex County Hospital, Brighton, he took the F.R.C.S. in 1932, and was then appointed senior assistant resident medical officer at the Brighton Infirmary. Later he became surgical registrar at the Royal Sussex County Hospital before being elected to the senior staff of the hospital in 1936. He was also appointed consultant surgeon to the Royal Alexandra Children's Hospital, the Haywards Heath Hospital, and the Heritage Craft Schools, and later to the St. Francis Hospital and Hurstwood Park Hospital. When the National Health Service took over Cuckfield Hospital, built for the Canadian Forces during the second world war, he was also appointed to the staff of that hospital. Children's surgery was his special interest, but he also became an experienced thoracic surgeon, performing major operations in that specialty as a routine, though he consistently refused to attempt valvulotomy.

In addition to writing for local medical societies, he contributed to discussions of the Clinical Section of the Royal Society of Medicine and published papers in the *British Journal of Surgery*. He was in very wide demand for private work over a large area, and his judgment, technical ability, and personality made him popular and trusted by doctors and patients alike. Having been secretary of the Brighton and Sussex Medico-chirurgical Society, he also served for a long period on the executive committee of the local B.M.A. Division, of which he had been chairman. At the Annual Meeting at Brighton in 1956 he was a vice-president of the Section of Surgery. It was after the National Health Service came into being that his really heavy responsibilities arose. He was a member of the hospital management committee of the Brighton and Lewes group—a large one, with a budget of well over £1m. yearly, but needing reorganization and much rebuilding—and chairman of the group medical and medical staff committees for some years. He was the unchallenged and universal choice for these offices, for his hospital colleagues had implicit trust in his judgment and integrity, and his outwardly calm temperament combined with firmness and humour to control many difficult situations.

There can be no doubt, however, that these most extensive and unremitting responsibilities were too heavy, and in 1958 he had a myocardial infarction. He recovered reasonably from this, but, after a year, returned to committee work, and, though no longer chairman, was still very heavily relied on. Physical limitations returned, so that even his beloved fishing became a labour. In personal affairs, too, he had much strain. He had a fall while riding and damaged his remaining eye: a detached retina threatened total blindness, but operation was fortunately successful. Against these continued strains, which played on him but which were never allowed to appear, he found comfort in his fishing, in shooting, and in gardening. A distinguished Freemason, he held provincial rank in the Craft and Royal Arch. He was exceptionally happily married, and very deep sympathy is felt for his widow and his son.

The loss of this relatively young, very able, and universally trusted man has been a very great shock to the whole profession over a wide area, and will be keenly felt for a long time and in many ways. He combined the values of the older generation with the judgment and abilities of the new, and his courage provided an abiding example and inspiration.—W. A. B.

J. M. LEES, B.M., B.Ch., D.M.R.

Dr. J. M. Lees, consultant radiologist to the Leeds group of hospitals, died on March 17, eleven days after his 55th birthday.

Joseph Montagu Lees was born on March 6, 1905, and was educated at Rugby and at New College, Oxford, going on to Guy's Hospital medical school for his clinical training. He qualified L.M.S.S.A. in 1929, and in the following year took the degrees of B.M., B.Ch. While at Guy's he gained the Beaney scholarship. After qualification he held a number of resident appointments at Guy's Hospital, subsequently becoming a demonstrator in the departments of physiology and pharmacology. Later, he decided to specialize in radiology, and in 1937 obtained the Diploma in Medical Radiology of the English Royal Colleges. He then obtained an appointment on the staff of the Prince of Wales's General Hospital, Tottenham, and set up in

practice in Park Crescent, London, W.1. After a few years there he moved to Leeds, where he remained in practice in his specialty until his death.

J. C. N. writes: I should like to add a tribute from one of his oldest friends to the memory of Dr. J. M. Lees, universally known to his intimates as "José," with whom I first became friendly while at New College, Oxford. Though small in stature, José Lees had a most active and ingenious mind, and interests of all kinds. When I first met him he was endeavouring to circumvent the medical "prelims," with which he had some difficulty until he had the bright (and successful) idea of taking private tuition from one of the examiners. Later, when he was first embarking on private practice as a radiologist, I imagine the preliminary steps in this specialty were probably less orthodox than they are to-day; so when a private patient was coming along he would enlist the services of willing friends for a trial radiological trip before the great event. At that time there did not seem to be anything undesirable about unnecessary exposure to *x* rays in moderation. After a little practice he became an excellent radiologist, and a sound opinion. In the early 'thirties, when anything of a military nature was liable to be rather unfashionable, José joined the Territorial Army and then proceeded to persuade various others of his medical friends to do the same. He served throughout the second world war in his specialty, mostly overseas, and afterwards continued in the service as a regimental medical officer until his death. His brother officers attended his funeral and acted as bearers.

José was a most colourful figure, with a keen interest in many things besides medicine, including cars, gardening, and old houses, and he had excellent taste in furniture and books. He had a most happy family life in the old house he lived in outside York, and quantities of friends. He would not have pretended to be a brilliant specialist, but, like the best of our profession, he was a sound and conscientious doctor, though he always had an original and often stimulating point of view about most problems. His special genius for friendship, which grew with the passing of the years, was founded on his innate kindliness and sympathetic understanding of other people's characters. His many friends will miss him sadly.

J. S. M. CONNELL, F.R.C.S.Ed., L.D.S.

Mr. J. S. M. Connell, for many years a well-known gynaecologist in Birmingham, died on March 25 at his home near Pershore in Worcestershire. He was 71 years of age.

John Stewart Marshall Connell was born in Glasgow on January 2, 1889. At first he studied dentistry in Glasgow and obtained the L.D.S. in 1914. By the time the first war broke out he was commencing hospital work as a medical student, and also he was in the 1st Lanarkshire Volunteers. But he went to France as a dental surgeon with the Highland casualty clearing station, and during periods of high pressure he gave anaesthetics and performed operations. In 1917 he was invalided, and it was then he joined the Birmingham medical school. After taking the Scottish triple qualification in 1919, he was a house-surgeon to Leonard Gamgee at the General Hospital, Birmingham, and afterwards to Thomas Wilson, professor of gynaecology. Then he became resident surgical officer at the Queen's Hospital. He obtained the F.R.C.S. of Edinburgh in 1922, and for some time he was teaching in the departments of pathology and anatomy. For a number of years Connell worked as whole-time gynaecologist at the Dudley Road Hospital under Thomas Wilson, whom he succeeded. Upon deciding to enter private consulting practice he resigned that post and became gynaecologist at the Midland Hospital, Birmingham, at the Hallam and the District Hospitals at West Bromwich, at the Kidderminster Hospital, and at Walsall.

Shortly after the first world war Connell joined the 143 Field Ambulance (T.A.), which he eventually commanded, retiring in 1938 with the rank of brevet-colonel. In 1939 he was given command of the hospital ship *Somersetshire*, but in 1941 he retired from active service and returned to Birmingham, where he served as an E.M.S. surgeon in addition to his gynaecological work. After ceasing active practice some years ago he retired into the country, but the ill-health which for long had harassed him became more apparent.

Connell was a gentle, kindly man who possessed a great urge to make the most of his life. He had a slight hesitation of speech, his training in medicine was much disturbed by the first war, and asthma and a slowly progressive malady provided formidable handicaps. Nevertheless he was a really good operator, he possessed sound judgment, his patients were deeply appreciative, and he had the gift of friendship. Good temper and a ready smile were always evident. In committee he was attentive and purposive. He was a faithful disciple of Thomas Wilson—master obstetrician and pioneer gynaecologist.

Mr. Connell married Miss Constance Challis, also a doctor. They had a son and a daughter, who followed her parents into the medical profession. For his widow and children widespread sympathy is felt.—H. W. F.

H. B. W. writes: Colonel J. S. M. Connell was reserved and modest but confident and understanding, and all these qualities made him an excellent obstetrician and gynaecologist. He took a wide interest in all aspects of hospital activities, and in consequence was a very good committeeman. A neat operator, he was the complete master of the Pfanenstiel incision, which he used almost invariably for his abdominal approach. One of his recreations was fishing, and in later years he derived a good deal of pleasure from his farm at Abberton. There will be many who will feel deeply the passing of this English gentleman, but none so keenly as his devoted widow, son, and daughter.

T. B. DIXON, C.B.E., V.R.D., M.R.C.S., L.R.C.P.

Dr. T. B. Dixon, who was formerly in practice in Bristol, died at Bantham, Devon, on March 16. He was 74 years of age.

Thomas Benjamin Dixon was born in Tai Yuan Fu, China, on January 19, 1886. He was educated at Blackheath School for the Sons of Missionaries, and during his stay there his parents were killed in the Boxer Rising of 1900. He studied medicine at the Bristol medical school and University College Hospital, London, qualifying in 1909. After holding resident appointments at the Bristol General Hospital, he went into practice in Bristol in 1910. He retired to Bantham in 1949. In Bristol he took an active part in local affairs and was for a time a member of the Bristol county borough council. During the first world war he served in the R.N.V.R., and was in H.M.S. *Kent* at the battle of the Falkland Islands. After the war he remained in the R.N.V.R. and became P.M.O. of the Severn Division. In 1937 he was appointed Honorary Physician to King George VI. During the second world war he served, in the rank of surgeon captain, mainly at Dover, and in 1945 he was appointed C.B.E.

He is survived by his widow, younger son, and his daughter, who is now a partner in the practice her father founded. His elder son was killed in the course of his work as test pilot to the helicopter division of the Fairey Aviation Company.

O. E. L. S. writes: Dr. T. B. Dixon was a man of astonishing versatility. In his younger days he was an enthusiastic alpinist, and throughout his life an excellent fisherman, a first-class shot, and a capable handler of small sailing craft. These activities provided a very necessary respite from the enormous amount of work he put into our practice. His maxim was "a successful partnership is one in which both partners are prepared happily to do two-thirds of the work." No young man entering general

practice could have wished for a better chief. Undoubtedly, on his retirement, his patients in the Bedminster and Clifton districts of Bristol lost a very kind friend and his associates a wise and considerate mentor.

T. S. SARGENT, M.B., Ch.B.

Dr. T. S. Sargent, who was formerly in practice at Ashton-under-Lyne, died on March 25 at the Western Infirmary, Glasgow. He was 70 years of age.

Thomas Stewart Sargent was born on January 16, 1890. He trained at the University of Glasgow, making his mark as a student and being prominent in student affairs as office-holder on various committees and as a debater. After graduating M.A. he took to teaching, but later returned to the university as a medical student. After qualifying in 1920 he held several house appointments at the Western Infirmary, where he made the acquaintance of his future wife, who was a ward sister. Before qualifying, however, he showed the patriotism and public spirit which always distinguished him by serving as a probationer surgeon in the Royal Navy. In 1920 he went into practice in Ashton-under-Lyne, where he took his full share in local medical affairs, both social and professional. He was successively honorary secretary and chairman of the local Division of the B.M.A., a member and one-time president of Ashton Rotarians, and a popular member of the golf club. In the second world war he was elected chairman of the local medical war committee, and showed admirable tact and efficiency in carrying out the duties of that office. In the middle of the war he felt that to fill up the quota required from his district he must himself, as a man without family other than his wife, volunteer, and he spent the rest of the war in the R.A.M.C.

He did not take very kindly to the National Health Service, like many others of his generation, and he retired within a few years, returning to his native heath near Dunoon.

J. V. F. writes: Tom Sargent was a good example of the conscientious general practitioner who, without making a great splash on his arrival in a town, gradually over the years gathers a reputation for soundness and integrity, and receives the devoted adherence of a large number of satisfied patients. From time to time he was visited in retirement in lovely Innellen by some of his old patients, and he took great delight in their visits. His wife died two years before him, and after her death his health deteriorated and a diagnosis of leukaemia was made. He visited hospital from time to time for blood transfusions and still presented a cheerful face to such of his friends as were able to visit him. He is mourned by a large though scattered circle of friends and colleagues.

ALLAN HENDRY, *M.C.*, M.B., Ch.B.

Dr. Allan Hendry, of Bucksburn, Aberdeenshire, died in hospital of a cerebral haemorrhage on March 28. He was 63 years of age.

Allan Cruickshank Hendry was born in Aberdeen on July 8, 1896, and left the Aberdeen Grammar School early in the first world war to serve in France and win an *M.C.* as a young lieutenant with the Gordon Highlanders. Later he transferred to the Royal Flying Corps, where he flew many missions and was demobilized with the rank of captain in 1919 to start medicine at Aberdeen University, where he graduated M.B., Ch.B. in 1924. Apart from a short period in hospital posts, he spent the whole of his professional life as a single-handed general practitioner at Bucksburn. As medical officer to the R.A.F. at Dyce Aerodrome he was called up in 1939 and served for the whole of the second world war, finishing as a wing commander.

He had a long record of public service, being a justice of the peace of Aberdeen County. After many years on the panel committee and the old insurance committee, in 1948 he was appointed chairman of the local medical committee, and later he became a member of the executive council of Aberdeen and Kincardine counties. He also represented the North of Scotland on the General Medical Services Committee. Always a keen B.M.A. man, he had been chairman of the Aberdeen and Kincardine Counties Division and president of the Aberdeen Branch. In a few weeks' time he was to have been honoured by the local medical committee with a presentation for his unique service as chairman for the past 12 years.

No one was kinder when a colleague was sick nor more regular in visiting. Many in the area in which he worked have cause to bless Allan Hendry and are the poorer by his passing.—J. M. G.

A colleagues writes: Allan Hendry was a born leader. At his crowded funeral service the padre said he had measured up to the stature of a man, and spoke of the love of patients and friends. We were deeply moved. He leaves rich memories, and when we have forgotten the silvery-tongued we shall remember his forthright speech, the terse, telling phrase, his earthy wit, but, above all, his complete honesty. Not easily forgotten will be that swerve he had with the rugger ball on the varsity playing-fields of Old Aberdeen, his co-option in his youth by the wise old men who started the panel committee and knew they had picked a winner, and his work for the University Club, where he will be much missed, especially at the hour of fellowship and relaxation in the firelight at the end of the day. But, most of all, we shall remember his genial chairmanship of the L.M.C. annual dinner, when the Aberdeen consultants were honoured guests around the great square table (and the spirit of Rabelais hovered with delight above the cigar smoke).

The sympathy of all his colleagues goes out to his wife Peggy, who shared in the gracious hospitality of his home.

Medico-Legal

IRRESISTIBLE IMPULSE

[FROM OUR LEGAL CORRESPONDENT]

On March 9 the Judicial Committee of the Privy Council delivered judgment[1] allowing the appeal of the Attorney-General for South Australia from a judgment of the High Court of Australia which quashed the conviction and sentence of death passed on the respondent John Whelan Brown by the Supreme Court of South Australia. The verdict and judgment of the trial court were restored.

Was Respondent Legally Insane?

Late in November, 1958, Brown was engaged as a station hand on Pine Valley sheep station in South Australia. A few days later, for no apparent reason, he shot the station manager through the head while he was in bed. The facts of the killing were not in dispute. The only issue at the trial was whether the defence had discharged the onus of proving on balance of probability that the respondent was legally insane when he shot the station manager. The issue was further narrowed by the agreement between the medical witnesses for the prosecution and defence upon the following matters: (1) That the respondent was a schizoid personality; (2) that neither before nor after the shooting was he suffering from any disease or disorder of the mind; and (3) that at the moment of shooting he knew the nature and quality of his act. The medical witnesses differed, however, on the question whether Brown knew, when he did the shooting, that what he was doing was wrong. The medical witness for the defence testified that in his opinion the respondent at the time of the shooting had lapsed into a temporary state of simple schizophrenia in which he did not know that what he was doing was wrong. For the prosecution, on the other hand, medical evidence was given that the respondent never at any time had schizophrenia,

[1] [1960] 2 W.L.R., p. 588.

and that, even if he did, he not only knew the nature and quality of his act but also knew that it was wrong.

In the course of summing up to the jury, the trial judge referred to the lack of apparent motive for the shooting, and to certain statements of Brown that he could not help doing it: the judge said that the jury might think that the accused was acting under an uncontrollable impulse (although this point was not raised by the defence). He then directed the jury categorically that uncontrollable impulse was no defence in law.

"A Misleading Oversimplification"

The High Court of Australia allowed Brown's appeal against conviction because of this direction. In the High Court's view it was a misleading oversimplification. It might be true that, although a man acted under uncontrollable impulse, he yet knew the nature and quality of his act and that it was wrong, and therefore according to the McNaughton Rules he ought to be convicted. Yet it was wrong to say that, because he acted under an uncontrollable impulse, he was not legally insane. On the contrary, domination by an uncontrollable impulse might afford strong grounds for the inference that a man was labouring under such a defect of reason from disease of the mind as not to know that he was doing what was wrong. Uncontrollable impulse might be a symptom of such a disease of the mind and so might be evidence of insanity. The High Court added the following important words:

"For that reason, even if no more had been said than that uncontrollable impulse does not amount to a defence, the fact that the subject was mentioned would make it necessary to put before the jury the true operation of uncontrollable impulse as a possible symptom of insanity of a required kind and degree."

Absence of Medical Evidence

The Judicial Committee disagreed with the High Court's opinion and restored the conviction. The High Court's judgment was founded on the mistaken view that the law takes note of such matters as the medical significance of irresistible impulse without evidence. The judgment was objectionable since it would be read by judges "as requiring them to tell the jury as a matter of law and in the absence of any medical evidence to that effect that irresistible impulse is a symptom of some disease or disorder of the mind which, although not preventing the patient from knowing the nature and quality of his act, yet does prevent him from knowing that it is wrong." If evidence to that effect were given, the judge should refer to it in his summing up, but he was not entitled to give directions based on his own knowledge of medical fact or opinion, and such medical opinion was certainly not a part of the law.

Quite apart from its importance in the law of insanity, this decision is an important reminder that the courts are only allowed to act upon the evidence before them in the particular case being tried. The only exception is in cases where the judge is allowed to take "judicial notice" of a fact: these cases are where the fact is one of "public notoriety" (for instance, the date of Christmas) or is capable of immediate accurate demonstration by resort to readily accessible sources of indisputable accuracy (for instance, facts of history). If this were not so, the courts might act upon knowledge (for instance, medical knowledge) which is either erroneous or outdated.

CORONERS' CASES

Perforation during Sigmoidoscopy

A retired gardener, aged 64, with a long history of chronic bronchitis, was admitted to Clacton Hospital on March 4 for investigation of abdominal symptoms that might have been caused by a colonic growth. Sigmoidoscopy under anaesthetic was carried out, but during the course of the operation the wall of the bowel was perforated by the instrument. An abdominal operation then became an urgent necessity in order to repair the perforation, but the patient died.

Dr. J. B. Penfold, the pathologist, said that death was due to cor pulmonale caused by chronic bronchitis and emphysema. The operation for suture of the bowel was a contributory cause. A verdict of death by misadventure was recorded by the deputy coroner for North-East Essex, Mr. F. E. M. Puxon (*East Anglian Daily Times*, April 2).

Doctor Criticized by Parents

The parents of a 10-months-old girl complained, at a Sunderland inquest, that the doctor had neglected his duty by failing to visit her on the day before she died. Called to see the child on a Thursday evening the doctor diagnosed diarrhoea and vomiting and prescribed the appropriate treatment. He said that on the occasion of his first visit he did not consider the child ill enough to justify removing her to hospital. The next day the doctor was himself unwell and went to bed early with an attack of neuritis. During the evening a message was received from the parents that the child was pale and not her usual self. Thinking there was no urgency the doctor decided that a visit next morning would meet all the requirements of the case; but when he arrived, shortly before mid-day, the child was moribund and she died before arriving at hospital. There was a conflict of evidence as to what was actually said in conversations between the child's mother and the doctor.

The coroner, Mr. C. Morton, recorded a verdict that death was due to gastroenteritis. He said, "The only question that arises is with regard to the Friday night. That is a very doubtful point. I do not think this case requires any criticism from me of the doctor's management of it" (*Yorkshire Post*, March 26).

Medical Notes in Parliament

COMMISSION'S REPORT ACCEPTED IN FULL

GOVERNMENT DECISION ANNOUNCED

The announcement of the Government's decision that the recommendations of the Royal Commission on Doctors' and Dentists' Remuneration should be accepted as a whole was made to the House of Commons in a written answer given by the Minister of Health on April 11.

Lord BALNIEL (Hertford, Con.) asked the Minister whether he had yet concluded his preliminary discussions with the medical and dental professions; and if he was now in a position to make a statement on the report of the Royal Commission on Medical and Dental Remuneration.

The text of the reply by Mr. D. WALKER-SMITH is as follows:

"Yes. The Secretary of State for Scotland and I have informed representatives of the medical and dental professions that her Majesty's Government are prepared to accept the Commission's recommendations as a whole as they stand, provided that the doctors and dentists respectively for their part are ready to accept them on the same basis.

"We have drawn attention to various matters which are an integral part of full acceptance of the recommendations, including the establishment of a standing body to keep medical and dental remuneration under review on the lines proposed by the Commission. For a number of reasons, however, it is not possible to adopt the Commission's proposal that the Inland Revenue should furnish the review body with comprehensive information about professional earnings generally, but the Government are confident that the review body will be able to obtain the necessary information by other means, such as sample inquiries, and will, of course, be ready to give the body any help to this end that lies within their power.

"The preliminary discussions we have had with representatives of the professions have been helpful and we have been able to clarify a number of points. We have offered as the next step to arrange for the proposals to be worked out in detail jointly by officers of our departments with representatives of the

professions in order that as clear and comprehensive a picture as possible of their practical effect may be put before their members. We understand, however, that before this offer to engage in detailed discussions can be accepted it will need to be put to the professions through their appropriate channels. It is our hope that the professions will reach their decisions, and that discussions will begin, as soon as possible.

"It is estimated that the extra annual cost falling upon the Exchequer if the proposals are agreed will be about £11½m. net. The extra cost which would fall in 1960–1 is, however, estimated at £41½m. net, because the payments recommended by the Commission in respect of earlier years would fall to be made in that year and because of other temporary features."

R.C.P. BILL OPPOSED

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The Bill promoted by the Royal College of Physicians, having gone through all its stages in the House of Lords without hindrance, is encountering some stiff opposition in the Commons. The order for the second reading has been twice objected to, the second time on April 12, with the result that the Bill has been deferred until after Easter. The purpose of the Bill is to secure Parliamentary authority for the Royal College "to perform corporate acts and hold meetings . . . anywhere in England, as it could hitherto lawfully perform and do in the City of London and the City of Westminster"; authorization for the name of the College, which although in use for over 100 years has never been authorized in earlier Acts*; and removal of the limit of £1,000 on the annual value of lands that may be held by the College.

Election of Fellows

The Bill's progress is being barred by Dr. BARNET STROSS (Stoke-on-Trent, Central, Lab.), with the support of Dr. J. DICKSON MABON (Greenock, Lab.) and Mr. K. ROBINSON (St. Pancras North, Lab.), and others. The issue on which their objection is based is the election of Fellows. Dr. STROSS has explained that the Royal College elects its Fellows from the membership when a vacancy occurs, but does not allow the members to vote; only Fellows have that privilege. The Fellows are said to be in a minority of about five to one compared with the members. There is an additional disadvantage in that voting has to be done in person, so that only those Fellows who can conveniently reach London make the decisions.

Dr. Stross wants the Royal College to adopt the practice of the Scottish Colleges—and of the Royal College of Surgeons—and give all members representation. If he can get an assurance that the Royal College will give voting rights to all members, and the use of the postal ballot, the obstacles placed in the way of further progress of the Bill will be removed. If no such accommodation seems likely to be reached before the Bill comes up again for second reading, the dispute will be brought on to the floor of the Commons by a procedure under which contested private legislation is injected into the ordinary business of the day at a specified time. If that were to happen, it is likely that the objectors would formulate their views in an instruction to the Select Committee—before which the Bill must be taken for its subsequent stage—to require an alteration of rules by the College authorities, and on that issue the House would pronounce.

Dr. Stross and his supporters sympathize with the general objects of the Bill, which are linked with the move of the Royal College to Regent's Park, and the fact that their rights have previously been limited to meetings in the City and Westminster.

QUESTIONS IN THE COMMONS

Chiropody Services

Dr. ALAN GLYN asked the Minister of Health on April 11 if he was aware that the Middlesex County Council was proposing a chiropody scheme, under the National Health Service Act, expressly excluding the services of privately practising chiropodists in their own surgeries except where such arrangements already existed; and if he would withhold his approval from this scheme. Mr. WALKER-SMITH replied that the county council's proposals had been submitted to him, but he would not feel justified in withholding his approval for the reason mentioned by Dr. Glyn.

Mr. A. KERSHAW (Stroud, Con.) asked the Minister how many schemes he had so far approved for local authorities to provide a chiropodist service; and how many of these schemes were or would be based upon the clinic system. Mr. WALKER-SMITH: Sixty-two; all of them allow for the use of clinics as one of the methods of making the service available.

Accidental Coal-gas Poisoning

Mr. G. NABARRO (Kidderminster, Con.) asked the Minister of Power whether he would state comparative figures for 1959 and 1954 in respect of deaths and injuries caused by coal-gas poisoning in premises of all types other than mines. Mr. J. C. GEORGE, Parliamentary Secretary to the Ministry of Power, said the Gas Council estimated that there were 774 accidental deaths from coal-gas poisoning in 1954 in Great Britain and (provisionally) 958 in 1959. He had no information about injuries.

Meat Inspection

Mr. F. H. HAYMAN (Falmouth and Camborne, Lab.) asked the Minister of Agriculture, Fisheries, and Food what percentage of uninspected meat from slaughterhouses in England and Wales was sold for human consumption. Mr. J. B. GODBER, the Joint Parliamentary Secretary, told him that no precise figures were available, but it was estimated that over 90% of meat was inspected before leaving the slaughterhouse.

Warning of Epidemics

Lord BALNIEL asked what steps were taken by the Ministry of Health to obtain an early warning of epidemic infections overseas which were liable to spread to this country so as to ensure adequate time for the preparation of appropriate vaccine.

Mr. WALKER-SMITH stated that early information regarding epidemics occurring abroad was made available to this country by the World Health Organization.

Skin-grafting in South Wales

Mr. GEORGE THOMAS (Cardiff, West, Lab.) asked the Minister whether he was aware that people in South Wales who suffered burns had to be taken to Chepstow Hospital for skin-grafting; and whether, in view of the hardships this involved, he would establish equal facilities nearer the heavily populated area of South Wales. Miss PITT replied that highly specialized units of this kind must of necessity serve very wide areas. The possibility of a more suitable location for the unit would, however, be considered in connexion with the long-term development of hospital services in south-east Wales.

*See *Brit. med. J.*, January 9, 1960, p. 123.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The consultant staff of the United Cambridge Hospitals have appointed Dr. D. McC. Gregg to be a member of the Council of the Medical School until December 31, 1963.

In Congregation on March 19 the degree of M.B. was conferred on G. H. C. Jenkins.

UNIVERSITY OF GLASGOW

The honorary degree of LL.D. is to be conferred on Dr. Alexander King Bowman, formerly Senior Administrative Medical Officer of the Western Regional Hospital Board (Scotland), and on Dr. David Paton Cuthbertson, Director of the Rowett Research Institute, Bucksburn, Aberdeen.

UNIVERSITY OF EDINBURGH

Dr. N. L. Stokoe has resigned his appointment as Lecturer in the Department of Ophthalmology, and has had the status of Honorary Senior Lecturer in the department conferred upon him.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following have been awarded the Diploma in Gynaecology and Obstetrics:

B. N. Chakraborty, R. N. Jariwala, G. F. Mirza, M. Nasir Shaikh, L. C. Patel, S. B. Patil, B. Rafi.

UNIVERSITY OF LONDON

The titles of Professor of Haematology and Professor of Bacteriology in the University have been conferred respectively on Dr. W. M. Davidson and Dr. A. C. Cunliffe in respect of their posts at King's College Hospital Medical School.

The title of Reader in Oral Anatomy in the University has been conferred on Dr. H. J. J. Blackwood in respect of his post at the Royal Dental Hospital of London School of Dental Surgery.

UNIVERSITY OF MANCHESTER

The following candidates have satisfied the examiners at the examination for the Diploma in Psychological Medicine (Part II): J. T. Elliott, N. L. Gittleson, Helen S. Mathewson.

UNIVERSITY OF BIRMINGHAM

Professor J. Maclure Smellie, Emeritus Professor of Paediatrics and Child Health in the University, has been elected a life member of the Court of Governors.

Professor Alexander B. MacGregor and Dr. W. Trevor Cooke have been nominated as representatives of the teaching staff to serve on the Board of Governors of the United Birmingham Hospitals for the period April 1, 1960, to March 31, 1963.

The Board of Governors of the United Birmingham Hospitals has granted honorary status to the following: Dr. C. G. Caro, temporary Lecturer in Medicine, as Honorary Registrar in Medicine; Dr. G. Cumming, Lecturer in Medicine, as Honorary Senior House Officer in Medicine; Dr. L. A. G. Davidson, Lecturer in Medicine, as Honorary Senior Registrar in Medicine; Dr. June K. Lloyd, Lecturer in Paediatrics and Child Health, as Honorary Senior Registrar in Paediatrics and Child Health; Mr. Geoffrey Slaney, Senior Lecturer in Surgery, as Honorary Consultant in Surgery.

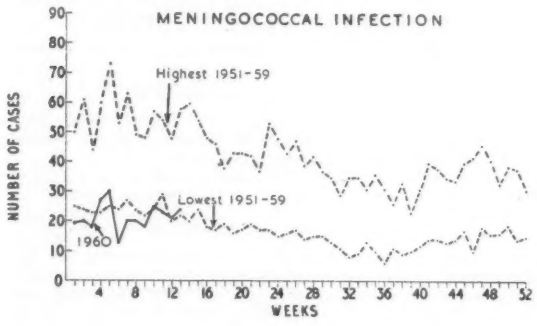
UNIVERSITY OF LEEDS

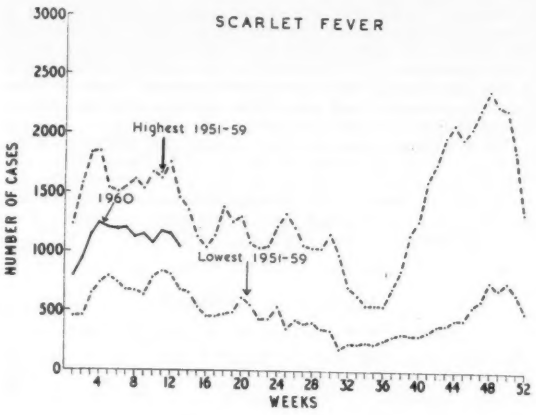
F. G. Smiddy was approved at the March examination for the degree of Ch.M.

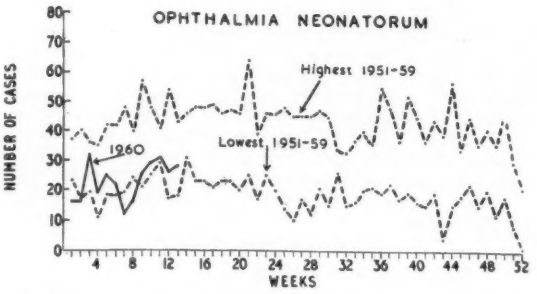
Vital Statistics

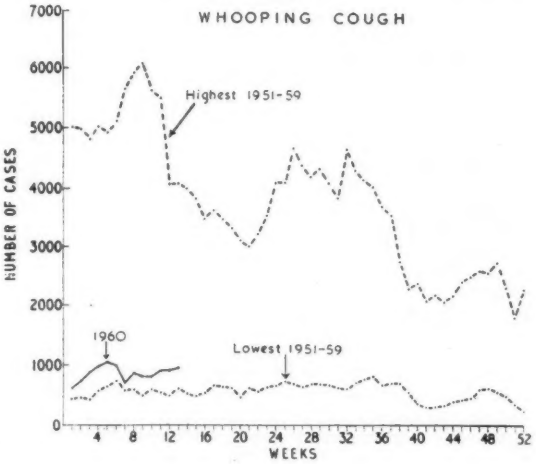
Graphs of Infectious Diseases

The graphs below show the uncorrected numbers of cases of certain diseases notified weekly in England and Wales. Highest and lowest figures reported in each week during the years 1951–9 are shown thus ------, the figures for 1960 thus ———. Except for the curves showing notifications in 1960, the graphs were prepared at the Department of Medical Statistics and Epidemiology, London School of Hygiene and Tropical Medicine.









Influenza in England and Wales

There were 42 deaths from influenza during the week ended April 2. This was 8 more than in the previous week. Deaths from pneumonia (629) and bronchitis (581) were both slightly down compared with the previous week, while notifications of pneumonia (441) were a little higher. For the first time since the first week of 1960 new claims (169,284) on the Ministry of Pensions and National Insurance were higher than at the corresponding time last year.

Poliomyelitis in the U.S.A.

During the year ended April 2, 1960, 8,521 cases of poliomyelitis were notified in the U.S.A.—about 40% more than in the previous year. The number of paralytic cases (5,678) was about 75% higher than in the previous year.—*New York Times*, April 10.

Road Deaths in February

Accidents on the roads of Great Britain during February caused the deaths of 458 people—86 more than in February, 1959. The total of killed and injured was 33% more than in the corresponding month in 1959, while motor traffic increased by 16%. Over half the pedestrians killed (182) were more than 60 years old: most of them were knocked down when crossing a road. Police reports on accidents resulting in death or serious injury show that 819 occurred when overtaking on the near side, and 952 when overtaking on the off side.

Infectious Diseases

Areas where numbers of notifications were high in the latest two weeks for which figures are available.

	Week Ending Mar. 26	Apr. 2
Dysentery		
Essex	89	**279**
Brentwood U.D.	0	**10**
Chigwell U.D.	1	**41**
Romford M.B.	24	**150**
Hampshire	35	**45**
Gosport M.D.	0	**16**
New Forest R.D.	5	**15**
Kent	101	**118**
Chatham M.B.	23	**27**
Deal M.B.	16	**20**
Margate M.B.	9	**33**
Orpington U.D.	1	**11**
Lancashire	470	**450**
Liverpool C.B.	51	**65**
Oldham C.B.	58	**55**
Preston C.B.	17	**30**
Urmston U.D.	4	**21**
Walton-le-Dale U.D.	2	**18**
Lincolnshire	13	**76**
North Kesteven R.D.	0	**49**
London	257	**238**
Islington	37	**30**
Southwark	47	**56**
Stepney	3	**19**
Nottinghamshire	85	**98**
Beeston and Stapleford U.D.	9	**31**
Bingham R.D.	40	**36**
Somersetshire	32	**84**
Bath C.B.	20	**71**
Surrey	17	**46**
Banstead U.D.	0	**34**
Wiltshire	32	**37**
Cricklade and Wootton Bassett R.D.	10	**23**
Yorkshire West Riding	240	**298**
Bradford C.B.	50	**53**
Dewsbury C.B.	1	**41**
Huddersfield C.B.	12	**28**
Sheffield C.B.	50	**74**
Merionethshire	0	**29**
Deudraeth R.D.	0	**29**
Glasgow	102	**112**
Food-poisoning		
Staffordshire	7	**58**
Lichfield R.D.	1	**57**
Measles		
Nottinghamshire	58	**153**
Beeston and Stapleford U.D.	18	**68**
Lancashire	549	**680**
Liverpool C.B.	137	**188**
Manchester C.B.	53	**97**
Eccles M.B.	92	**102**
Continued Fever		
Glasgow	0	**8**

INFECTIOUS DISEASES AND VITAL STATISTICS

Summary for British Isles for week ending **April 2** (No. 13) and corresponding week 1959.

Figures of *cases* are for the countries shown and London administrative county. Figures of *deaths* and *births* are for the whole of England and Wales (London included), London administrative county, the 17 principal towns in Scotland, the 10 principal towns in Northern Ireland, and the 14 principal towns in Eire.

A blank space denotes disease not notifiable or no return available.

The table is based on information supplied by the Registrars-General of England and Wales, Scotland, N. Ireland, and Eire, the Ministry of Health and Local Government of N. Ireland, and the Department of Health of Eire.

CASES	1960 Eng. & Wales	1960 Lond.	1960 Scot.	1960 N. Ire.	1960 Eire	1959 Eng. & Wales	1959 Lond.	1959 Scot.	1959 N. Ire.	1959 Eire
Diphtheria	1	0	2	0	2	2	1	3	0	
Dysentery	2,465	238	211	24	11	771	82	180	11	3
Encephalitis, acute	2	0	1	0		4	1		0	
Enteric fever:										
Typhoid	3	1	0	0	2	0	0	0	0	1
Paratyphoid	1	0	0	0		17	2	3 (B)	0	
Food-poisoning	270	27	11	4		117	13	0	1	
Infective enteritis or diarrhoea under 2 years				12	18				2	23
Measles*	2,465	86	51	3	22	25,266	1388	936	470	360
Meningococcal infection	24	3	11	0		28	0	14	0	2
Ophthalmia neonatorum	28	1	1	0		18	2	6	0	
Pneumonia†	441	27	205	10	5	761	38	319	45	26
Poliomyelitis, acute:										
Paralytic	3	1	0	0	1	6	0	1	1	1
Non-paralytic	2	2	0			3	0	1		
Puerperal fever§	144	28	10	1		249	35	13	1	
Scarlet fever	1,054	61	69	29	17	916	56	60	21	16
Tuberculosis:										
Respiratory	429	52	70	15		589	68	62	13	
Non-respiratory	57	6	12	3		46	4	10	1	
Whooping-cough	943	86	230	8	40	608	27	44	37	108

DEATHS	1960 Eng. & Wales	1960 Lond.	1960 Scot.	1960 N. Ire.	1960 Eire	1959 Eng. & Wales	1959 Lond.	1959 Scot.	1959 N. Ire.	1959 Eire
Diphtheria	0	0	0	0	0	0	0	0	0	0
Dysentery	0	0		0		2	0		0	
Encephalitis, acute		0			0		0		0	0
Enteric fever	0	0	0	0		0	0	0		
Infective enteritis or diarrhoea under 2 years	7	0	0	0	0	3	0	0	0	0
Influenza	42	0	0	0	2	294	7	7	11	12
Measles	0	0	0	0	0		0	0	0	1
Meningococcal infection		0	0				0	0		
Pneumonia	629	42	14	13	8	818	57	39	30	30
Poliomyelitis, acute	1	0		0	0	0	0		0	0
Scarlet fever	0	0	0	0	0		0	0	0	0
Tuberculosis:										
Respiratory	65	3	5	1	3	105	9	5	0	6
Non-respiratory		0	0	1	0		0	1	0	0
Whooping-cough	0	0	0	0	0	1	0	0	0	0
Deaths 0–1 year	353	30	27	9	19	338	35	41	12	17
Deaths (excluding stillbirths)	10,829	798	620	145	190	11,573	838	666	188	251
LIVE BIRTHS	16,042	1245	1082	288	379	16,283	1317	1184	236	307
STILLBIRTHS	309	23	30			362	25	20		

* Measles not notifiable in Scotland, whence returns are approximate.
† Includes primary and influenzal pneumonia.
§ Includes puerperal pyrexia.

Medical News

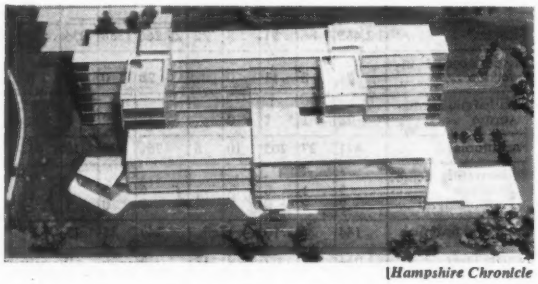
B.M.A. Car Badge Scheme

The British Medical Association's car badge scheme—introduced in the "pink zone" of London's West End last December (*Supplement*, December 5, 1959, p. 185)—will be extended to doctors practising in the Metropolitan Police District from April 25. Application forms for the badges (which will cost 7s. 6d. for members of the B.M.A. and 10s. for non-members) may be obtained from the Secretary, B.M.A. House, Tavistock Square, London, W.C.1.

It is hoped to extend the scheme—which will enable police controlling parking to exercise discretion in favour of practising doctors as recommended by the Ministry of Transport—throughout England, Wales, and Scotland within the next few weeks.

Wessex Regional Hospital Board Plans

The Wessex Regional Hospital Board, which controls 115 hospitals with 17,400 beds, has announced a 12-year project costing about £24m. which will provide an up-to-date hospital service for the two million people in its administrative area. The numbers of people treated in its general



[Hampshire Chronicle

hospitals rose from 86,000 to 127,000 a year between 1948 and 1958, and this work, the Board says, had to be carried out in buildings inadequate even by 1948 standards.

Seventeen major schemes have already been planned and the Minister of Health, Mr. D. WALKER-SMITH, has already sanctioned four of them—the rebuilding of Poole General Hospital (shown here) in two stages, starting in June and costing nearly £2m. ; a new £500,000 neurosurgery unit at Southampton General Hospital (£500,000) ; extra beds at Coldeast Hospital (£500,000) ; and the rebuilding of the Royal South Hants Hospital at a cost of £900,000. The plan for the Southampton Group includes the provision of an accident service and centre. The Board also plans a central sterile supply service which could feed all the hospitals in its area.

Leverhulme Trust Fund

The *Third Report* of the Leverhulme Trust—the first of a series of triennial reports—records the commitment of £593,000 during the period 1956 to 1958, £174,800 (30%) of which went to medical research.

Those who benefited included Manchester University (department of education of the deaf); Institute of Laryngology and Otology; Middlesex Hospital Medical School; Royal College of Physicians; Mental Health Research Fund; St. Mary's Hospital Medical School; London College of Osteopathy; Royal College of Obstetricians and Gynaecologists; Royal College of Surgeons; London School of Hygiene and Tropical Medicine; Postgraduate Medical School, Hammersmith; and Durham University, King's College Medical School. A grant for associateships also went to the Royal Society of Medicine.

Upjohn Travelling Fellowships

Applications are invited from members of the College of General Practitioners for not less than 15 travelling fellowships of up to £200 each. These fellowships are to enable general practitioners to carry out a minimum of two weeks' postgraduate study at their old teaching hospitals or at any other hospitals, clinics, health centres, or general practices of their choice in the United Kingdom or Eire. Details may be obtained from the Secretary, The College of General Practitioners, 41, Cadogan Gardens, London, S.W.3. The closing date for applications is July 31. The names of the successful applicants will be announced on November 19.

South-west Metropolitan Regional Hospital Board

The South-west Metropolitan Regional Hospital Board has awarded prizes to the following in its 1959 competition for reports of research work in its area:

Consultants, S.H.M.O.s: 200 guineas—Dr. DERMOT PIERSE and Dr. H. O'DONOGHUE (joint entry); 150 guineas—Dr. D. KENDALL. *Senior Registrars, Registrars, J.H.M.O.s:* 100 guineas—Dr. A. POTELIAKHOFF; 50 guineas—Dr. P. SEWELL. *Senior House Officers, House Officers:* 100 guineas—Dr. J. D. MAYNARD; 75 guineas—Dr. C. P. BROAD.

Details of the 1960 competition may be obtained from the Board's senior administrative medical officer, 40, Eastbourne Terrace, London, W.2.

Chair of Physiology, London Hospital Medical College

Dr. K. W. CROSS, reader in physiology at St. Mary's Hospital Medical School, London, has been appointed to the chair of physiology at the London Hospital Medical College from October 1.

Dr. Cross qualified M.R.C.S., L.R.C.P. from St. Mary's Hospital Medical School in 1940, M.B., B.S. (Lond.) in 1941, M.R.C.P. (Lond.) 1942, Ph.D. (Lond.) 1952, and D.Sc. (Lond.) 1958. From 1940 to 1946 he held various house appointments in the St. Mary's Hospital sector, being finally graded as physician. From 1946 to 1947 he served in the Friends' Ambulance Unit in China, and since then he has been successively lecturer and reader in physiology at St. Mary's Hospital Medical School. He spent the academic year 1958 to 1959 as a U.S. Public Health Postdoctoral Fellow in the Cardiovascular Research Institute, University of California, San Francisco. Dr. Cross has published several papers, chiefly on the respiration, metabolism, and temperature control of the newborn infant.

International Society for Clinical and Experimental Hypnosis

A British National Division of the International Society for Clinical and Experimental Hypnosis has recently been formally constituted. The first president is to be Professor ALEXANDER KENNEDY. The other officers are Mr. E. E. WOOKEY (chairman of council), Dr. M. J. FENTON (hon. treasurer), and Dr. A. A. MASON (hon. secretary).

Harkness Fellowships

The Commonwealth Fund has elected the following to Harkness Fellowships for 1960, tenable for one or two years in the United States: Mr. R. Y. CALNE (Royal Free Hospital, London), surgery; Dr. R. HALL (Royal Victoria Infirmary, Newcastle upon Tyne), medicine; and Dr. I. C. RODDIE (Queen's University, Belfast), physiology.

Midland Thoracic Society

The officers and council members of the Midland Thoracic Society for the 1960–1 session are as follows :

President: Dr. G. R. W. N. LUNTZ; *Honorary Secretary:* Dr. H. E. THOMAS; *council:* Dr. A. O. BECH, Dr. B. T. DAVIS, Dr. A. W. B. MACDONALD, and Dr. S. Z. KALINOWSKI.

Central Midwives Board

Mr. ARNOLD WALKER has been re-elected as chairman and Professor A. A. MONCRIEFF as deputy chairman of the Central Midwives Board for the ensuing year.

News about People

Dr. J. BIERER is lecturing in Israel, Athens, and Rome on the revolution in British psychiatry and the aims of social psychiatry.

Mr. R. W. RAVEN, who has been giving lectures and surgical demonstrations in Bogotá and Jamaica, has been elected an honorary member of the Society of Surgeons of Colombia.

COMING EVENTS

Friends of Vellore.—Diamond Jubilee concert: Albert Hall, April 25, 7.30 p.m. Soloist: Miss EILEEN JOYCE. Tickets (3s. 6d. to 15s.) from Friends of Vellore, 244, Ballards Lane, N.12. (Hillside 7657.)

"Eye on Research."—Professor J. MCMICHAEL, F.R.S.: "Pulmonary Circulation of the Blood," B.B.C. T.V.: April 26, 9.15 p.m.

London Medical Orchestra.—Concert in aid of Imperial Cancer Research Fund, April 30, 8 p.m., Royal College of Surgeons, Lincoln's Inn Fields. Works by Brahms, Beethoven, and Weber. Soloist: JOSEPH COOPER. Tickets at door or from Dr. H. O. ENGEL, Ford Motor Company, Dagenham.

First Almroth Wright Lecture.—Professor A. St. G. HUGGETT, F.R.S., "Foetus as an Anaerobe: Some Prenatal Problems," May 2. For details see *Journal*, advertisement page 58.

Jephcott Lecture, 1960.—Sir HOWARD FLOREY, F.R.S.: "Coronary Artery Disease," May 9, 7 p.m., Royal Society of Medicine, 1, Wimpole Street, London, W.1. Admission by ticket only. Postal applications to the Secretary, Jephcott Lecture Trust, 1, Carlos Place, London, W.1.

National Association for Mental Health.—Residential conference, London, for general practitioners: "Psychiatry and the General Practitioner," May 27–29. Details from N.A.M.H., 39, Queen Anne Street, London, W.1. (WEL 1272.)

Edinburgh Postgraduate Board for Medicine.—General practitioners' refresher course, September 19–October 1. For details see advertisement p. 57.

Society of Medical Officers of Health: College of General Practitioners.—Second joint conference, July 16, 17, the Medical School, University of Birmingham, Edgbaston. Details from Dr. J. BEATSON HIRD, 97, Hillmeads Road, Kings Norton, Birmingham, 30.

European Congress of Aviation Medicine.—London, August 29–September 2. Details from E.C.A.M. (1960) Congress Secretary, c/o British European Airways, Central Medical Clinic, London Airport (N), Hounslow, Middlesex.

SOCIETIES AND LECTURES

A fee is charged or a ticket is required for attending lectures marked ●. Applications should be made first to the institution concerned.

Monday, April 25

HUNTERIAN SOCIETY.—At Talbot Restaurant, 7 for 7.30 p.m., annual general (dinner) meeting. Sir Albert E. Richardson: Dr. Johnson's England, with Special Reference to London.

●INSTITUTE OF ACCIDENT SURGERY.—At Large Lecture Theatre, Department of Anatomy, Birmingham University, 5.30 p.m., inaugural Ruscoe Clarke Memorial Lecture by Lieutenant-General Sir Alexander Drummond: Care of the Injured.

MANCHESTER MEDICAL SOCIETY: SECTION OF ODONTOLOGY.—At Lecture Room, Dental Hospital, 4.30 for 5 p.m., clinical meeting and annual general meeting.

ST. MARY'S HOSPITAL MEDICAL SOCIETY.—6.15 p.m., Dr. T. Stapleton: A Look at Paediatrics, Psychiatry, and Delinquency.

Tuesday, April 26

ROYAL STATISTICAL SOCIETY: MEDICAL SECTION.—At Manson Theatre, London School of Hygiene and Tropical Medicine, 5.30 p.m., Dr. E. G. Knox: Susceptibility to Acute Respiratory Diseases in Children.

ST. ANDREWS UNIVERSITY.—At Lecture Theatre, Physiology Department, Queen's College, Small's Wynd, Dundee, 5 p.m., Dr. Franklin D. Johnston (Michigan): Acoustics of Stethoscope Design.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.—At Wright-Fleming Institute, 5 p.m., Professor J. H. McK. Pinkerton: Antenatal Paediatrics in the First Trimester.

Wednesday, April 27

HARVEIAN SOCIETY OF LONDON, 11, Chandos Street, W.—8.15 p.m., Symposium on Liver Disease, Dr. Hans Popper (New York): Mechanism of Cirrhosis Formation; Dr. Leon Schiff (Cincinnati): Some Problems in the Differential Diagnosis of Jaundice. Discussion to be opened by Dr. W. H. J. Summerskill.

INSTITUTE OF DERMATOLOGY.—5.30 p.m., Dr. H. Haber: Lymphocytic Infiltration of the Skin.

INSTITUTE OF DISEASES OF THE CHEST.—5 p.m., Mr. Vernon Thompson: Constrictive Pericarditis.

LONDON UNIVERSITY.—At London Hospital Medical College, 5.15 p.m., special university lecture in medicine by Professor J. Romano (Rochester, U.S.A.): On the Teaching of Psychiatry to Medical Students.

MANCHESTER MEDICAL SOCIETY: SECTION OF MEDICINE.—At Crumpsall Hospital, 3.30 p.m., clinical meeting.

OXFORD UNIVERSITY.—At Radcliffe Infirmary, 5 p.m., Litchfield Lecture by Mr. Wylie McKissock: Surgical Treatment of Intracerebral Haemorrhage.

POSTGRADUATE MEDICAL SCHOOL OF LONDON.—2 p.m., Professor G. J. Cunningham: Cellular Damage.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 p.m., Arnott Demonstration by Dr. A. A. Barton: Wings.

Thursday, April 28

HONYMAN GILLESPIE LECTURES.—At Anatomy Theatre, University New Buildings, Teviot Place, Edinburgh, 5 p.m., Dr. J. A. Simpson: Myasthenia Gravis.

INSTITUTE OF DERMATOLOGY.—5.30 p.m., Dr. R. R. M. Harman: Anatomy of Skin. Benign Skin Conditions, with Reference to Radiotherapy.

INSTITUTE OF NEUROLOGY.—5 p.m., Dr. Eliot Slater: Epileptic Psychosis.

LIVERPOOL SOCIETY OF ANAESTHETISTS.—At Manchester, combined meeting with Manchester Medical Society. Dr. G. N. Mulliner: Anaesthesia and Body Temperature; Dr. J. C. Richardson: New Developments in Anaesthesia for Cardiac Surgery.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.—At Royal Free Hospital School of Medicine, 8.30 p.m., Dr. R. G. Cochrane: Survey of the World Leprosy Problem.

LONDON JEWISH HOSPITAL MEDICAL SOCIETY.—At Medical Society of London, 8.15 p.m., Mr. David Levi: Acute Abdomen.

MANCHESTER MEDICAL SOCIETY: SECTION OF ANAESTHETICS.—At Staff House, Manchester University, 7.45 for 8 p.m., joint meeting with Liverpool Society of Anaesthetists. Dr. G. N. Mulliner: Anaesthesia and Body Temperature; Dr. J. C. Richardson: New Developments in Anaesthesia for Cardiac Surgery.

MEDICAL SOCIETY OF THE ROEHAMPTON PLASTIC CENTRE.—8 p.m., Mr. Guy Pulvertaft: Advances in Hand Surgery.

NORTH-WESTERN THORACIC SOCIETY.—At Baguley Hospital, Wythenshawe, Manchester, 3 p.m., clinical meeting.

POSTGRADUATE MEDICAL SCHOOL OF LONDON.—4 p.m., Dr. Richard Schatzki: Some Aspects of Dysphagia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 p.m., Hunterian Lecture by Professor W. J. Metcalfe: Arterial Embolism in the Lower Limbs.

ST. ANDREWS UNIVERSITY.—At Lecture Theatre, Physiology Department, Queen's College, Small's Wynd, Dundee, 5 p.m., Professor C. L. Oakley, F.R.S.: Sites of Antibody Production.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL.—5 p.m., postgraduate demonstration by Dr. Hamilton Paterson: Neurology.

Friday, April 29

●INSTITUTE OF DERMATOLOGY.—5.30 p.m., Dr. P. D. Samman: clinical demonstration.

INSTITUTE OF DISEASES OF THE CHEST.—5 p.m., Dr. J. L. Livingstone: clinical demonstration.

INSTITUTE OF LARYNGOLOGY AND OTOLOGY.—(1) 3.30 p.m., clinical discussion for general practitioners. Dr. C. H. Edwards: Headache and Facial Pain. (2) 5.30 p.m., Mr. Anthony Radcliffe: Surgery or Radiotherapy for Cancer of the Neck.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.—At 11, Chandos Street, W., 7.30 p.m., short papers by Dr. W. K. Bernfeld, Dr. C. D. Alergant, Dr. Elizabeth Rees, Dr. A. C. C. Davey, and Dr. J. A. H. Hancock.

POSTGRADUATE MEDICAL SCHOOL OF LONDON.—10 a.m., Professor H. W. Rodgers: Diffuse Lesions of the Oral Mucosa.

APPOINTMENTS

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.—E. Tempany, M.B., B.Ch., M.R.C.P.I., D.C.H., House-physician; B. Gampel, M.B., Ch.B., House-surgeon to Orthopaedic and Plastic Departments.

MANCHESTER REGIONAL HOSPITAL BOARD.—J. P. Fraser, M.B., Ch.B., F.R.F.P.S., Maximum Part-time Consultant Ear, Nose, and Throat Surgeon to Bury and Rochdale Hospital Centres; J. A. C. Wilson, M.B., Ch.B., M.R.C.P., M.R.C.P.Ed., Consultant Physician (seven half-days weekly), Salford Group of Hospitals; P. H. Jones, F.R.C.S., Consultant Surgeon with special interest in Cardiac Surgery (Whole-time or Maximum Part-time), United Manchester Hospitals and Regional Board Hospitals in Central Manchester Area; M. S. Beare, M.B., B.Ch., F.R.C.S., Whole-time Assistant Chest Physician, Baguley Hospital, Manchester.

SWEETNAM, D. R., M.B., B.Chir., F.R.C.S., Assistant Orthopaedic Surgeon (Consultant) to Middlesex Hospital, London, W. (*Corrected announcement.*)

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Edelman.—On April 3, 1960, at Hillingdon Hospital, to Jacqueline (formerly Heller), wife of Dr. Seymour Edelman, of 267, Church Road, Hayes, Mddx., a son—Gary Steven.

DEATHS

Fletcher.—On March 4, 1960, Joseph Edward Fletcher, M.B., Ch.B., of Bicker, Boston, Lincs.

Hill.—On March 25, 1960, Charles Ernest Hill, M.B., Ch.B., of Church Fields, Old Basford, Nottingham.

Johnston.—On March 20, 1960, at 2, Winterstoke Crescent, Ramsgate, Kent, William Macdonald Johnston, M.B., Ch.B., late of Norbury, London, S.W., aged 62.

Keany.—On March 29, 1960, Edward Francis Kenny, M.B., B.Ch., J.P., of Troy House, Morley, Leeds, Yorks, aged 54.

Lahiff.—On March 24, 1960, at 20, Wilton Gardens, Cork, Edward Patrick Lahiff, M.B., B.Ch., late of Mitcham, Surrey.

Leon.—On March 7, 1960, in hospital, Kenneth Wilfred Leon, M.R.C.S., L.R.C.P., of 6, Cambridge Square, London, W.

Lewis.—On March 4, 1960, Walter Lewis, M.B., B.Chir., of 71, Harley House, London, N.W.

Mackay.—On March 7, 1960, in hospital, Mavis Eveline Mackay (formerly Furst), M.B., Ch.B., of The Red House, Stroude Road, Virginia Water, Surrey.

Swyer.—On March 6, 1960, Robert Swyer, M.R.C.S., L.R.C.P., D.P.H., of Moy Cottage, Crowborough, Sussex.

Any Questions?

We publish below a selection of those questions and answers which seem of general interest. It is regretted that it is not possible to supply answers to all questions submitted.

Persisting Pyrexia

Q.—*What might be the reason for a slight evening pyrexia persisting for weeks after tonsillitis in a child who otherwise appears well and in whom no signs of local inflammation remain?*

A.—There are several possible causes for this to bring it within the so-called physiological range. Under a given set of circumstances individuals vary a little. Thus Ivy[1] measured the mouth temperature of 276 medical students seated in class in Chicago between 8 and 9 a.m. The mean was 98.1° F. (36.75° C.); 68% (within one standard deviation from the mean) were between 97.7° and 98.5° F. (36.45° and 36.95° C.); 95% (within two standard deviations from the mean) were between 97.3° and 98.9° F. (36.25 and 37.15° C.). Secondly, in an average subject the range over which the temperature varies during the course of the day is from 97.0° F. (36.1° C.) at about 3 a.m. and 99.3° F. (37.35° C.) at 6 p.m. Samson Wright[2] reported experiments which illustrated some facts about normal temperature regulation in young men and showed how it varied in certain circumstances. He thought it undesirable to have a mark on clinical thermometers opposite the 98.4° F. (36.9° C.) level, since it could mislead the public into supposing that a reading above it represented pyrexia.

Experienced clinicians are familiar with this type of patient. If there are no other signs indicating disease, it is common experience that to disregard a slight evening temperature has no ill effects on the patient. On the other hand, to make too much of it may contribute to the anxiety state.

REFERENCES

1 Ivy, A. C., *Quart. Bull. Northw. Univ. med. Sch.*, 1944, **18**, 22.
2 Wright, S., *Brit. med. J.*, 1949, **1**, 610.

Flatus After Chloral Hydrate

Q.—*Some patients complain of passing a highly obnoxious amount of flatus after taking chloral hydrate for insomnia. The flatus continues often for two or three days. What is the reason for this, and how can it be prevented?*

A.—Chloral hydrate is an excellent and safe hypnotic. Its main drawbacks are its unpleasant taste and its tendency to cause gastric irritation. It does not have any significant effect on intestinal function, and it is unlikely that it is a direct cause of the passage of obnoxious flatus. Moreover, it is a drug which is rapidly metabolized and excreted, and one would not expect a single dose to produce an effect which continues for two or three days. Nervousness, anxiety, and tension are common causes of flatulence as well as of insomnia, and these factors are more likely to be responsible than the administration of the drug.

Another possibility which might be considered is whether other drugs given with the chloral might be responsible. Chloral hydrate is still frequently prescribed in a mixture together with bromides, although it is now well known that a single dose of bromide given in this way has no sedative or hypnotic effect. Bromides do tend to cause constipation, and if such a mixture is being taken regularly bromides might be responsible for the flatulence. Essential oils are often used as flavouring agents in such mixtures. Although these oils are reputed to act as intestinal carminatives this was not confirmed by Alstead and Patterson.[1] These possibilities could be excluded by prescribing chloral hydrate either in the form of capsules or as tablets of dichloralphenazone. If the obnoxious symptom persisted, and it was seriously thought that it was due to chloral hydrate, then the simplest form of prevention would be to change to one of the many other available hypnotics, either one of the barbiturates, such as cyclobarbitone or quinalbarbitone, or a non-barbiturate such as glutethimide or methyprylone.

REFERENCE

1 Alstead, S., and Patterson, J. F., *Lancet*, 1948, **1**, 437.

Pethidine and Blood-pressure

Q.—*Does pethidine always reduce the blood-pressure or only in certain patients?*

A.—Pethidine in therapeutic doses usually has little effect on the cardiovascular system in recumbent patients. When the drug is given to ambulant patients a small proportion of them, about 5%, experience syncope with a fall in blood-pressure and a slowing of the heart rate. These symptoms are quickly relieved if the patient lies down and puts his feet up. Sometimes rapid intravenous administration will have this effect even in a recumbent patient. King, Elder, and Dripps[1] found that 100–150 mg. of pethidine given intravenously had no significant effect on the blood-pressure of healthy volunteers while they were resting horizontally. When the subjects were tilted head-up to an angle of 60° within 10 to 20 minutes of the injection of the drug, 4 out of 24 had a marked fall in blood-pressure.

REFERENCE

1 King, B. D., Elder, J. D., and Dripps, R. D., *Surg. Gynec. Obstet.*, 1952, **94**, 591.

Thyrotoxicosis and Iodine Sensitivity

Q.—*What would be the appropriate treatment for a woman of 54 with nodular thyrotoxicosis and auricular fibrillation and a history of iodine sensitivity? She has had adequate digitalization and sedation with some improvement.*

A.—The ideal treatment of nodular thyrotoxicosis accompanied by auricular fibrillation in a woman aged 54 years is by ^{131}I. This treatment is not contraindicated by a history of iodine sensitivity. There might be a delay of from 6 to 12 weeks in achieving the maximal therapeutic result. Hypothyroidism occurs in about 10% of patients. Subtotal thyroidectomy would be advised by many. In addition to post-operative complications, it is associated with a high relapse rate and is sometimes followed by hypothyroidism. Treatment by antithyroid drugs, of which potassium perchlorate has been shown to be the least toxic, is satisfactory, but prolonged medication is required. These three methods of treatment were fully discussed by Professor Wayne in the first of his two Lumleian Lectures.[1]

REFERENCE

1 Wayne, E. J., *Brit. med. J.*, 1960, **1**, 1.

Collected Articles from the "British Medical Journal"

The following books are available through booksellers or from the Publishing Manager, B.M.A. House. Prices, which include postage, are now the same for both inland and overseas.

Refresher Course for General Practitioners, Volume 3 (26s. 9d.).

Clinical Pathology in General Practice (22s. 3d.).

Any Questions?, Volume 3 (8s. 3d.).

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